

STATE OF ARIZONA
AQUIFER PROTECTION PERMIT NO. P- 105310
PLACE ID 1675

1.0 AUTHORIZATION

In compliance with the provisions of Arizona Revised Statutes (A.R.S.) Title 49, Chapter 2, Articles 1, 2 and 3, Arizona Administrative Code (A.A.C.) Title 18, Chapter 9, Articles 1 and 2, A. A. C. Title 18, Chapter 11, Article 4 and amendments thereto, and the conditions set forth in this permit, BHP Copper Incorporated is hereby authorized to operate the named facilities of the Pinto Valley Operations, Copper Cities Unit, in Gila County, over groundwater of the Pinal Creek /Salt River Basin, in Sections 11, 12, 13, and 14 in Township 1 North, Range 14 East; and Sections 5, 6, 7, 8, and 9 in Township 1 North, Range 15 East of the Gila and Salt River Baseline and Meridian.

This permit becomes effective on the date of the Water Quality Division Director's signature and shall be valid for the life of the facility (operational, closure, and post-closure periods), unless suspended or revoked pursuant to A.A.C. R18-9-A213. The permittee shall construct, operate and maintain the permitted facilities:

1. Following all the conditions of this permit including the design and operational information documented or referenced below, and
2. Such that Aquifer Water Quality Standards (AWQS) are not violated at the applicable points of compliance (POC) set forth below, or if an AWQS for a pollutant has been exceeded in an aquifer at the time of permit issuance, that no additional degradation of the aquifer relative to that pollutant, and as determined at the applicable POC, occurs as a result of the discharge from the facility.

1.1 PERMITTEE INFORMATION

Facility Name: BHP Copper, Copper Cities Unit

Permittee:

BHP Copper Inc.

Mailing Address:

BHP Copper Inc.
Pinto Valley Operations
P.O. Box 100
Miami, AZ 85539

Facility's Street Address:

BHP Copper Inc.
Copper Cities Unit
Hwy. 88, 3 mi. North of Miami
Miami, AZ 85539

Facility Contact: Wayne Fuller Senior Environmental Engineer (520) 421-6508

Emergency Telephone Number: (520) 473-6200

Latitude: 33° 26' 44" N

Longitude: 110° 52' 24" W

Legal Description: Sections 11, 12, 13, and 14 in Township 1 North, Range 14 East; and Sections 5, 6, 7, 8, and 9 in Township 1 North, Range 15 East of the Gila and Salt River Baseline and Meridian

1.2 AUTHORIZING SIGNATURE

Joan Card, Director
Water Quality Division
Arizona Department of Environmental Quality
Signed this ____ day of _____, 2008

2.0 SPECIFIC CONDITIONS [A.R.S. §§ 49-203(4), 49-241(A)]**2.1 Facility / Site Description[A.R.S. § 49-243(K)(8)]**

The BHP Copper, Inc., Copper Cities Unit is located in Southern Gila County, along State Highway 188, 3 miles north of the town of Miami, Arizona. The site consists of two pits, two main leach dumps, waste rock piles, and a variety of impoundments and diversion structures used to transport and or impound process water, remedial water and/or stormwater. Active leaching of east and west leach dumps and waste rock piles occurred from 1962 to 1982. The waste rock and leach dumps are exempt from the APP program in accordance with A.R.S. § 49-250 (B)(11). The impoundments that collected impacted storm water and leach solution currently draining from the exempt rock dumps and leach piles are permitted under this APP. Process water from the passive leaching operation is routed through a series of impoundments and other facilities to the Copper Cities Deep Pit or the Diamond H Pit. The Copper Cities Deep Pit is permitted separately under aquifer protection permit (APP) number P-101888 while the Diamond H Pit is included in a remedial action that has been approved by the department and is exempt from the APP program in accordance with A.R.S. § 49-250.B.18. The Diamond H Pit receives treated Water Quality Assurance Revolving Fund (WQARF) remedial groundwater and sludge from the Lower Pinal Creek treatment plant. The water stored in the Diamond H Pit is contained and evaporated. Process water from the Copper Cities Deep Pit is transported through a four mile pipeline over Phelps Dodge property, to the BHP Miami facility for use in their in-situ leaching operation.

The Copper Cities Deep Pit Permit (P-101888) replaced the Groundwater Quality Protection Permit No. G-0008-04. The permit authorized the Copper Cities Deep Pit to act as a repository for reprocessed tailings from the BHP Miami Unit Tailings Reprocessing Project. The tailings slurry from the Miami Unit was pumped through a four mile long overland pipeline to the Deep Pit Tailings Repository beginning 1988 to 2001. Since 2001, the Deep Pit is used for process solution management and storm water collection. The Copper Cities Deep Pit will be amended into this area-wide permit once the technical deficiencies under Licensing Time Frames (LTF) are addressed for permit 101888. The amendment required to combine the permits at the Copper Cities Unit is required under Section 3, Compliance Schedule of this permit.

The site includes the following discharging facilities:

Table 2.1.1 Facilities		
Facility (Facility #)	Latitude	Longitude
Myberg Sub-Basin		
Cherry Spring Diversion Dam (4)	33° 26' 20.9" N	110° 53' 37.7" W
Cherry Spring Remedial Sump ¹ (6)	33° 26' 11.2" N	110° 53' 37.3" W
Cherry Spring Diversion Channel (8)	33° 26' 14.5" N	110° 53' 35" W
Diamond H Haulroad Diversion Channel (9)	33° 26' 9.3" N	110° 53' 33.8" W
Lost Gulch Sub-Basin		
Nine-in-the-hole (Remedial Sump ¹)(13)	33° 26' 9.6" N	110° 53' 12.4" W
Ninebo West Remedial Sump ¹ (14)	33° 26' 4.2" N	110° 53' 15.2" W
Ninebo East Remedial Sump ¹ (15)	33° 15' 3.7" N	110° 53' 13.2" W
No. 4 Capacitor Pond (17)	33° 26' 0.0" N	110° 53' 2.5" W
No. 4 Remedial Sump ¹ (18)	33° 26' 56.4" N	110° 53' 1.2" W
No. 4 Concrete Dam (21)	33° 26' 55.9" N	110° 52' 58.8" W
Tinhorn Wash Sub-Basin		
Upper Plant Site Pond (29)	33° 26' 28.7" N	110° 52' 11.8" W
Lower Plant Site Pond (58)	33° 26' 28.5" N	110° 51' 58.2" W
Tinhorn Concrete Dam (30)	33° 26' 25.3" N	110° 51' 49.9" W
Tinhorn Final Pond and Caisson (32b)	33° 26' 25.6" N	110° 51' 43.3" W

Table 2.1.1 Facilities		
Facility (Facility #)	Latitude	Longitude
No. 6 Remedial Sump ¹	Need	Need
No. 1 Drainage Sub-Basin		
No. 1 Concrete Dam (40)	33° 26' 48.4" N	110° 51' 32.9" W
No. 1 Basin Impoundment (42)	33° 26' 55.5" N	110° 51' 10.3" W
No. 3 Concrete Dam (44)	33° 27' 0.1" N	110° 51' 27.9" W
East Storm Ditch (45)	33° 26' 58.4" N	110° 51' 5.7" W
No. 5 Drainage Sub-Basin		
No. 5A Concrete Dam (49)	33° 27' 24.3" N	110° 51' 38.1" W
Zook Dam (51)	33° 27' 25.8" N	110° 51' 37.4" W
No. 5 Sediment Basin	Need	Need
No. 5 Earthen Dam (48)	33° 27' 19.8" N	110° 51' 38.8" W
Copper Cities Deep Pit Sub-basin		
Waste Rock Dumps (Yellowhair Turquoise Operation)	Need	Need

1. The term Sump is used in this table as the name of the facility and not as a description of function.

2.1.1 Cherry Spring Diversion Dam

Facility is an existing unlined diversion dam consisting of an earthen embankment that is constructed across the natural drainage. The impoundment receives impacted stormwater from upgradient surface areas and diverts the surface flow into Cherry Spring Remedial Sump.

2.1.2 Cherry Spring Remedial Sump

Facility is an existing unlined impoundment created by clayey sand earthen-fill dam constructed across the canyon. The dam face is covered with geotextile and riprap for erosion control. The facility employs a seepage collection trench as DCT to minimize discharge. The impoundment receives seepage (leachate) from the waste rock dump. The impounded solution is pumped through an HDPE pipeline to the Diamond H Pit. The impoundment has a design capacity of 6.8 acre-feet, sufficient to contain maximum inflow from the 100-year/24-hour storm event. The facility shall be operated with a minimum of 2 feet of freeboard.

2.1.3 Cherry Spring Diversion Channel

Facility is an existing diversion and conveyance channel excavated into bedrock. The channel is 8 feet wide x 2 feet deep x 1,040 feet long with a gradient of 0.06 ft/ft. The channel collects stormwater and run-off from mine waste dumps and discharges into Diamond H Pit Reservoir.

2.1.4 Diamond H Haulroad Diversion Channel

Facility is an existing diversion and conveyance channel excavated into bedrock. The channel is 8 - 21 feet wide x approximately 4 feet deep x 2,250 feet long with a gradient of 0.022 ft/ft. The channel collects stormwater and run-off from mine waste dumps and discharges into Diamond H Pit Reservoir. The channel runs parallel and adjacent to the Diamond H Haulroad. Seepage, in excess of 9,000 gallons per day, through alluvium under the Diamond H Haul Road, is collected by the Ninebo East and West Remedial Sumps, and the Ninebo South Seepage Collection Trench.

2.1.5 No. 6 Remedial Sump

Need Description

2.1.6 Nine-in-the Hole Remedial Sump

Facility is an existing, unlined impoundment constructed on weathered crystalline bedrock. The

bottom of the impoundment is covered with a thin layer of accumulated fines and clayey gravel. The impoundment has a surface area of 4.5 acres and a depth of 35 feet. The storage capacity of the impoundment is approximately 132 acre-feet which is more than 8 times the maximum storm event (MSE) run-on volume into the impoundment. The impoundment collects leachate from the waste rock dumps and surface water runoff from the facilities located upgradient of the impoundment. Two barge-mounted, stainless steel pumps, rated at 200 gpm each, are installed to pump the impounded water into the Diamond H Pit.

2.1.7 Ninebo West Remedial Sump

Facility is an existing, unlined impoundment excavated into relatively low hydraulic conductivity, unweathered, crystalline bedrock. The impoundment, approximately 40 feet x 40 feet x 10 feet deep, consists of a clayey sand, earthen embankment. The impoundment collects seepage from waste rock dumps and co-mingled impacted stormwater, typically 5 gpm, through alluvium under the Diamond H Haul Road. The impoundment has a 4 feet diameter concrete caisson, equipped with two 12 gpm each, submersible pumps and automatic fluid level probes. The fluid from the caisson is pumped through an HDPE pipeline to discharge into the No. 4 Concrete Sump. The impoundment is backfilled with drain rock. Any seepage from the impoundment is collected into Ninebo South Collection Trench. The impoundment has adequate storage and pumping capacity to remove the inflow from the 100-year/24-hour storm event.

2.1.8 Ninebo East Remedial Sump

Facility is an existing, unlined impoundment excavated into relatively low hydraulic conductivity, unweathered, crystalline bedrock. The sump, approximately 30 feet x 70 feet x 10 feet deep, consists of a clayey sand, earthen embankment. The sump collects seepage from leach dumps and co-mingled stormwater, typically 10 gpm, through alluvium under the Diamond H Haul Road. The sump has 4 feet diameter concrete caisson, equipped with two 12 gpm each, submersible pumps and automatic fluid level probes. The fluid from the caisson is pumped through an HDPE pipeline to discharge into the No. 4 Concrete Sump. The impoundment is backfilled with drain rock. Any seepage from the sump is collected into Ninebo South Collection Trench. The impoundment has adequate storage and pumping capacity to remove the inflow from the 100-year/24-hour storm event

2.1.9 No. 4 Capacitor Pond

Facility is an existing impoundment constructed as a retention pond with 6-inch compacted clay-rich soil liner. The impoundment collects stormwater and leachate from the West Leach Dumps at approximately 100 gpm as seepage through the base of the leach dump and/or alluvium under the Diamond H Haul Road. The impoundment has a fluid storage capacity of 27.6 acre-feet. The impoundment is drained, via gravity, to No. 4 Concrete Dam, using three 12-inch diameter HDPE pipelines to minimize hydraulic head on the clay liner. Containment of flows from the 100-year/24-hour storm event is provided in conjunction with No. 4 Concrete Dam.

2.1.10 No. 4 Remedial Sump

Facility is an existing impoundment constructed as a retention pond with 6-inch compacted clay-rich soil liner. The impoundment collects stormwater and leachate from the West Leach Dumps which may overtop or seep past the No. 4 Concrete Dam. The storage capacity of the impoundment is approximately 132 acre-feet which is more than 8 times the maximum storm event (MSE) run-on volume into the impoundment. Two barge-mounted stainless steel pumps, rated at 200 gpm each, are installed to pump the impounded water into the No. 4 Concrete Sump.

2.1.11 No. 4 Concrete Dam

Facility is an existing, unlined impoundment created behind a concrete dam, 28 feet long x 4 feet high x 6-inch thick concrete, constructed on low hydraulic conductivity crystalline bedrock. The concrete dam is keyed into bedrock. The dam collects impacted stormwater and leachate, approximately 100 gpm, from the West Leach Dumps through three 12-inch diameter pipes into a concrete weir box constructed within the impoundment behind the dam. One 15-inch diameter HDPE pipeline from the

weir box carries fluid to No. 4 Concrete Sump. Seepage through fractured bedrock at No. 4 Concrete Dam is captured by the No. 4 Remedial Sump.

2.1.12 Upper Plant Site Pond

Facility is an existing, unlined impoundment excavated into fill, underlain by relatively low hydraulic conductivity crystalline bedrock. The impoundment collects leachate from the West Leach Dump and stormwater. The impoundment has a fluid storage capacity of 60,000 gallons. Accumulated fluid is directed through a culvert and flows to Tinhorn Wash Remedial Water Control facilities. Seepage through the fill is captured by the Tinhorn Concrete Dam.

2.1.13 Lower Plant Site Pond

Facility is an existing, unlined impoundment constructed over fill and alluvium overlying relatively low hydraulic conductivity crystalline bedrock. The impoundment collects leachate and stormwater from Upper Plant Site Pond and upgradient plan site areas through a culvert. The surface area of the impoundment is approximately 0.25 acres. The impoundment has a maximum fluid depth of approximately 10 feet. Infiltration into fill is captured at Tinhorn Concrete Dam and Tinhorn Final Pond. Accumulated fluid gravity flows, via Tinhorn Ditch, to No. 2 Evaporation Pond. Containment of surface flows from the 100-yr, 24-hr storm event is provided by the No. 2 Tailings Evaporation Pond.

2.1.14 Tinhorn Concrete Dam

Facility is an existing, unlined impoundment created behind a concrete dam, 23 feet long x 6 feet wide x 1 foot thick, keyed into low hydraulic conductivity crystalline bedrock. The impoundment has a storage capacity of less than 0.05 acre-feet. The impoundment collects seepage, typically 5 to 10 gpm, through the fill at the Lower Plant Site Pond. The collected seepage (leachate and stormwater) is discharged through two HDPE pipelines, by gravity, into the Tinhorn Fiberglass Tank. Containment of surface flows from the 100-year/24-hour storm event is provided by the Tinhorn Final Pond.

2.1.15 Tinhorn Final Pond and Caisson

Facility is an existing, unlined impoundment excavated into silty or clayey gravels, and constructed with an earthen embankment. The impoundment has a concrete caisson equipped with a 30 gpm submersible pump discharging into Tinhorn Fiberglass Tank. The pump is activated using a high level probe. The impoundment has a fluid storage capacity to contain surface flows from the 100-year/24-hour storm event.

2.1.16 No. 1 Concrete Dam

Facility is an existing, unlined impoundment created behind a steel-reinforced concrete dam, 16 feet high x 52.5 feet long, constructed upon and keyed into crystalline bedrock. The impoundment collects stormwater and leachate from the East Leach Dumps. The impoundment has a fluid storage capacity of 0.2 ac-ft. The impoundment is equipped with an outlet pipe installed 5 feet above the base to discharge collected fluid into No. 6 Remedial Sump and has a spillway at 10.5 feet above the base. Containment of flows from the 100-year/24-hour storm event is provided in conjunction with No. 1 Basin Impoundment.

2.1.17 No. 1 Basin Impoundment

Facility is an existing, unlined impoundment excavated into native soil and developed on Gila conglomerate with an earthen embankment. The impoundment has a fluid storage capacity of 15 ac-ft, with caisson to collect impacted stormwater and seepage from No. 1 concrete Dam. The impoundment is equipped with a barge pump to discharge collected fluid through an HDPE pipe to No. 2 Evaporation Pond. The facility has a standby diesel-powered generator to operate the pump in case of power failure. The facility shall be operated with a minimum of 2 feet of freeboard. The impoundment shall be pumped out as soon as practical, but no later than thirty (30) days after cessation of storm event or upset condition.

2.1.18 No. 3 Concrete Dam

Facility is an existing, unlined impoundment created behind a steel-reinforced concrete dam, 12 feet high x 65 feet long, constructed upon and keyed into crystalline bedrock. The impoundment has a fluid storage capacity of 50,000 gallons. The impoundment collects stormwater and leachate from the East Leach Dumps. The impoundment is equipped with an outlet pipe installed 4 feet above the base to discharge collected fluid into No. 1 Weir (acid-resistant concrete box with a leak detection tunnel underneath) and then to No. 6 Remedial Sump. The concrete dam has a spillway at 11 feet above the base. Containment of flows from the 100-year/24-hour storm event is provided by No. 6 Remedial Sump.

2.1.19 East Storm Ditch

Facility is an existing, unlined ditch, approximately 10 feet wide x 6 feet deep x 7,000 feet long, excavated into weathered crystalline bedrock. The ditch collects impacted stormwater and seepage from the East Leach Dumps and diverts the collected fluid to No. 2 Evaporation Pond. The ditch is designed to transmit surface flows resulting from the 100-year/24-hour storm event.

2.1.20 No. 5A Concrete Dam

Facility is an existing, unlined impoundment created behind a steel-reinforced concrete dam, 25 feet long x 2 feet wide x 5 feet high, constructed upon and keyed into crystalline bedrock. The impoundment collects impacted stormwater and seepage draining through a discharge pipe from No. 5 Earthen Dam in a weir box and discharges through an HDPE pipe into caisson at the Zook Dam.

2.1.21 Zook Dam

Facility is an earthen-fill retention dam constructed across the main channel of No. 5 drainage. The impounded area is excavated into crystalline bedrock, with a grout curtain extending to a depth of 50 feet beneath the full length of the dam embankment. The dam has a 100 feet long toe drain excavated into bedrock and is equipped with a pumpback system. The impoundment has a fluid storage capacity of approximately 13.14 ac-ft. Accumulated fluid in the impoundment is pumped, via an HDPE pipeline, to discharge into No. 6 Remedial Sump. The facility has a standby diesel-powered generator to operate the pump in case of power failure. The pumping equipment is adequately sized to pump incoming flows and surface flows from the maximum storm event (MSE) of 22.7 ac-ft. The facility shall be operated with a minimum of 2 feet of freeboard.

2.1.22 No. 5 Sediment Basin

Facility is an existing, unlined impoundment constructed with an earthen embankment, underlain by a few feet of alluvium overlying crystalline bedrock. The impoundment has a fluid storage capacity of several thousand gallons, with a depth of approximately 3 feet. The impoundment collects stormwater and leachate from the East Leach Dump. Accumulated fluid gravity flows through an HDPE pipe outlet located near the impoundment bottom, and reports to No. 5A Concrete Dam.

2.1.23 No. 5 Earthen Dam

Facility is an existing impoundment created behind an earthen dam, 35 feet wide x 350 long, constructed upon and keyed into crystalline bedrock. The impoundment has a fluid storage capacity of approximately 14 ac-ft, with an 8-inch diameter HDPE pipe outlet near the bottom of the earthen embankment to convey solution to No. 5A Concrete Dam. Any small amount of potential subsurface seepage is captured by the Zook Dam. The impoundment is generally dry.

2.1.24 Waste rock Dumps (Yellowhair Turquoise Operation)

Need Description

Annual Registration Fee [A.R.S.§49-242(D)]

The Annual Registration Fee for this permit is established by A.R.S. § 49-242(D) and is payable to ADEQ each

year.

Financial Capability [A.R.S. §49-243(N) and A.A.C. R18-9-A203]

The permittee must demonstrate financial capability under A.R.S. § 49-243(N) and A.A.C. R18-9-A203. The permittee shall maintain financial capability throughout the life of the facility.

2.2 Best Available Demonstrated Control Technology

[A.R.S. § 49-243(B) and A.A.C. R18-9-A202(A)(5)]

The facilities list, with BADCT descriptions, is located in Section 4.1, Table 4.1.1.

2.2.1 Engineering Design

The facilities list, with BADCT descriptions, is located in Section 4.1, Table 4.1.1.

2.2.2 Site-specific Characteristics

The facilities list, with BADCT and facility descriptions, is located in Section 4.1, Table 4.1.1.

2.2.3 Pre-Operational Requirements

Not Applicable

2.2.4 Operational Requirements

Permitted facilities shall be inspected for performance levels listed in Section 4.2, Table 4.2.1. Results of these inspections and monitoring activities shall be documented and maintained for at least ten (10) years, and as required by Section 2.7.2 of this permit.

If damage is identified during an inspection that could cause or contribute to an unauthorized discharge, proper repairs shall be promptly performed. A summary of the repairs, including a description of the procedures and materials used shall be maintained with the inspection records noted above.

2.3 Discharge Limitations [A.R.S. §§ 49-201(14), 49-243 and A.A.C. R18-9-A205(B)]

The permittee shall operate and maintain all permitted facilities listed below to prevent unauthorized discharges pursuant to A.R.S. §§ 49-201(12) resulting from failure or bypassing of BADCT pollutant control technologies including liner failure¹, uncontrollable leakage, overtopping (e.g., exceeding the maximum storage capacity, defined as a fluid level exceeding the crest elevation of a permitted impoundment), berm breaches that result in an unexpected loss of fluid, accidental spills, or other unauthorized discharges. The discharge limitations in this section are not applicable to any discharge caused by precipitation in excess of a single 100-year/24 hour storm event or process overflow during a power outage exceeding 24 hours in duration.

2.4 Point(s) of Compliance (P.O.C.) [A.R.S. § 49-244]

The Points of Compliance are established by the following monitoring location(s):

Table 2.4.1 POCs				
Well ID	Sub-basin	PMA	Latitude	Longitude

¹ Liner failure in a single-lined impoundment is any condition that would result in leakage exceeding 550 gallons per day per acre.

Table 2.4.1 POCs				
Well ID	Sub-basin	PMA	Latitude	Longitude
CC-302*	Lost Gulch	West	Need	Need
CC-303*	Lost Gulch	West	Need	Need
CC-304*	Lost Gulch	West	Need	Need
CC-532*	Tinhorn Wash	East	Need	Need
CC-533*	Tinhorn Wash	East	Need	Need
CC-534*	Tinhorn Wash	East	Need	Need
CC-154	Tinhorn Wash	East	Need	Need
No. 1 Adit Caisson	No. 1	East	Need	Need
CC-530	No. 1	East	Need	Need
CC-964	No. 5	East	Need	Need

- * These POCs are established by groundwater monitoring wells, however, the POCs will not be monitored under this APP permit. The need for groundwater monitoring and the establishment of AQLs and ALs at these POCs, will be reviewed when site characterization activities are completed and a remedial action plan for source control is submitted and approved by WQARF. Any groundwater monitoring data collected under WQARF for these wells, shall be submitted to WQCS.

Monitoring requirements for each P.O.C. are listed in 4.2, Table 4.2.1.

The Director may amend this permit to designate additional points of compliance if information on groundwater gradients, groundwater quality, or groundwater usage indicates the need.

2.5 Monitoring Requirements [A.R.S. § 49-243(K)(1), A.A.C. R18-9-A206(A)]

All monitoring required in this permit shall continue for the duration of the permit, regardless of the status of the facility. All sampling, preservation and holding times shall be in accordance with currently accepted standards of professional practice. Trip blanks, equipment blanks and duplicate samples shall also be obtained, and chain of custody procedures shall be followed, in accordance with currently accepted standards of professional practice. The permittee shall consult the most recent version of the ADEQ Quality Assurance Project Plan (QAPP) and EPA 40 CFR PART 136 for guidance in this regard. Copies of laboratory analyses and chain of custody forms shall be maintained at the permitted facility. Upon request these documents shall be made immediately available for review by ADEQ personnel.

2.5.1 Discharge Monitoring

The permittee shall collect a one time representative fluid sample from the following discharging facilities: Cherry Springs Remedial Sump, No. 4 Capacitor Pond, Tinhorn Final Pond and Caisson, and Zook Pond. The samples shall be collected in accordance with Section 3, Compliance Schedule and shall be analyzed for constituents listed in Section 4, Table 4.2.2.

The results of the discharge monitoring shall be submitted to the Ground Water Section, APP and Drywell Unit, within 90 days of the issuance of the permit.

2.5.2 Facility / Operational Monitoring

The operational monitoring requirements for the facilities referenced in Section 4.1, Table 4.1.1 are listed in Section 4, Table 4.2.1.

2.5.3 Groundwater Monitoring and Sampling Protocols

2.5.3.1. Groundwater Sampling Protocols

Static water levels shall be measured and recorded prior to sampling. Wells shall be purged of at least three borehole volumes (as calculated using the static water level) or until indicator parameters (pH, temperature, conductivity) are stable, whichever represents the greater

volume. If evacuation results in the well going dry, the well shall be allowed to recover to 80% of the original borehole volume, or for 24 hours, whichever is shorter, prior to sampling.

If after 24 hours there is not sufficient water for sampling, the well shall be recorded as dry for the monitoring event. An explanation for reduced pumping volumes, a record of the volume pumped, and modified sampling procedures shall be reported and submitted with the Self Monitoring Report Form (SMRF).

The permittee may conduct the sampling using the low-flow purging method as described in the Arizona Water Resources Research Center, March 1995 *Field Manual for Water Quality Sampling*. The well must be purged until indicator parameters stabilize. Indicator parameters shall include dissolved oxygen, turbidity, pH, temperature, and conductivity.

2.5.3.2 Ambient Groundwater Quality Monitoring for POC wells

Eight (8) monthly rounds of groundwater sampling shall be completed to establish ambient groundwater quality conditions for CC-154, No 1 Adit Caisson, CC-530 and CC-964. Each ambient groundwater sample shall be analyzed for the parameters listed in Section 4.2, Tables 4.2.3, 4.2.4, 4.2.5, 4.2.6 and 4.2.7.

2.5.3.3 Alert Levels for POC and AL Wells

ALs shall be calculated for all contaminants with an established numeric AWQS for each POC.

Within ninety (90) days of the receipt of the laboratory analyses for the final quarter or month of the ambient groundwater monitoring period for each POC well referenced in Section 4, Table 4.1.3 the permittee shall submit the ambient groundwater data in tabulated form to the GWS-APPDWU for review. Copies of all laboratory analytical reports, field notes, and the Quality Assurance/Quality Control (QA/QC) procedures used in collection and analyses of the samples for all parameters listed in Section 4, Tables 4.2.8, 4.2.9, 4.2.10, 4.2.11 and 4.2.12 to be established for each POC well, shall be submitted to the GWS-APPDWU. The permittee may submit a report with the calculations for each AL and AQL included in the permit for review and approval by ADEQ, or the permittee may request calculation of the ALs and AQLs by the GWS-APPDWU. The ALs shall be established and calculated by the following formula, or another method submitted to GWS-APPDWU in writing and approved for this permit by the GWS-APPDWU:

$$AL = \bar{0} + K\Phi$$

Where $\bar{0}$ = mean, Φ = standard deviation, and K = one-sided normal tolerance interval with a 95% confidence level (Lieberman, G.J. (1958) Tables for One-sided Statistical Tolerance Limits: Industrial Quality Control, Vol XIV, No. 10). Obvious outliers should be excluded from the data used in the AL calculation.

The following criteria shall be met in establishing ALs in the permit:

1. The AL shall be calculated for a parameter using the analyses from a minimum of eight (8) monthly sample events. The permittee shall not use more than twelve (12) sample rounds in the calculation of a parameter.
2. Any data where the PQL exceeds 80% of the AWQS shall not be included in the AL calculation.
3. If a parameter is below the detection limit, the permittee must report the value as “less than” the numeric value for the PQL or detection limit for the parameter, not just as “non-detect”. For those parameters, the permittee shall use a value of one-half the reported detection limit for the AL calculation.

4. If the analytical results from more than 50% of the samples for a specific parameter are non-detect, then the AL shall be set at 80% of the AWQS.

2.5.3.4 Aquifer Quality Limits for POC Wells

For each of the monitored analytes for which a numeric aquifer water quality standard (AWQS) has been adopted, the AQL shall be established as follows:

1. If the calculated AL is less than the AWQS, then the AQL shall be set equal to the AWQS.
2. If the calculated AL is greater than the AWQS, then the AQL shall be set equal to the calculated AL value, and no AL shall be set for that constituent at that monitoring point.
3. For wells located in the WQARF areas, the AQL will be set at the WQARF cleanup levels or at the ambient groundwater quality at the time WQARF deems remediation at the site complete.

2.5.3.5 Compliance Groundwater Quality Monitoring for POC

Quarterly compliance groundwater monitoring in each POC and AL well shall commence within the first calendar quarter after completion of the ambient groundwater sampling period. The parameters to be analyzed for quarterly compliance monitoring are listed in Section 4, Tables 4.2.3, 4.2.4, 4.2.5, 4.2.6 and 4.2.7. In addition to quarterly compliance groundwater monitoring for parameters listed in Section 4, Tables 4.2.3, 4.2.4, 4.2.5, 4.2.6 and 4.2.7 for POC wells; an extended list of parameters shall be monitored at each POC well once every two (2) years (biennial). For the biennial monitoring events, the parameters listed in Section 4, Tables 4.2.8, 4.2.9, 4.2.10, 4.2.11 and 4.2.12 shall be analyzed. The biennial sampling event shall replace the regularly scheduled quarterly sampling event.

The permittee may submit a written request to the Ground Water Section, APP and Drywell Unit to reduce the monitoring parameters in either the Quarterly or the Biennial Compliance Groundwater Monitoring Tables (Section 4, Tables 4.2.3, 4.2.4, 4.2.5, 4.2.6, 4.2.7, 4.2.8, 4.2.9, 4.2.10, 4.2.11 and 4.2.12) in accordance with the following criteria:

1. The parameter in question has not been detected for at least two (2) consecutive biennial or four (4) consecutive quarterly monitoring periods. The PQL reported by the laboratory shall be less than 80% of the established numeric aquifer water quality standard, and shall not be greater than three times the laboratory's method detection limit for that pollutant.
2. The parameter in question is not detected in the process solution nor is it known to be present or used in the area that is being monitored by the well.
3. The permittee shall submit a written report indicating the parameter(s) proposed for deletion and accompanied by the supporting data, including the laboratory analytical reports and quality assurance/quality control data to the GWS-APPDWU for review and approval.
4. Upon review and approval by the GWS-APPDWU, the parameter in question may be dropped from the list of monitoring parameters or the respective AQL or AL modified in the permit. The respective changes, if approved, will require a minor amendment to the permit.

2.5.3.6 POC Well Replacement

In the event that one or more of the designated POC wells should become unusable or inaccessible due to damage, insufficient water in the well for more than 2 sampling events, or any other event, a replacement POC well shall be constructed and installed upon approval by

ADEQ. If the replacement well is fifty (50) feet or less from the original well, the ALs and/or AQLs calculated for the designated POC well shall apply to the replacement well.

2.5.4 Surface Water Monitoring and Sampling Protocols

Not required under this permit, at this time.

2.5.5 Analytical Methodology

All samples collected for compliance monitoring shall be analyzed using Arizona state approved methods. If no state approved method exists, then any appropriate EPA approved method shall be used. Regardless of the method used, the detection limits must be sufficient to determine compliance with the regulatory limits of the parameters specified in this permit. Analyses shall be performed by a laboratory licensed by the Arizona Department of Health Services, Office of Laboratory Licensure and Certification. For results to be considered valid, all analytical work shall meet quality control standards specified in the approved methods. A list of Arizona state certified laboratories can be obtained at the address below:

Arizona Department of Health Services
Office of Laboratory Licensure and Certification
250 North 17th Avenue
Phoenix, AZ 85007
Phone: (602) 364-0720

2.5.6 Installation and Maintenance of Monitoring Equipment

Monitoring equipment required by this permit shall be installed and maintained so that representative samples required by the permit can be collected. If new groundwater wells are determined to be necessary, the construction details shall be submitted to the ADEQ Ground Water Section for approval prior to installation and the permit shall be amended to include any new points.

2.6 Contingency Plan Requirements

[A.R.S. § 49-243(K)(3), (K)(7) and A.A.C. R18-9-A204 and R18-9-A205]

2.6.1 General Contingency Plan Requirements

At least one copy of the approved contingency and emergency response plan(s) submitted in response to the Compliance Schedule, Section 3.0, shall be maintained at the location where day-to-day decisions regarding the operation of the facility are made. The permittee shall be aware of and follow the contingency and emergency plans.

Any alert level (AL) that is exceeded or any violation of an aquifer quality limit (AQL), discharge limit (DL), or other permit condition shall be reported to ADEQ following the reporting requirements in Section 2.7.3.

Some contingency actions involve verification sampling. Verification sampling shall consist of the first follow-up sample collected from a location that previously indicated a violation or the exceedance of an AL. Collection and analysis of the verification sample shall use the same protocols and test methods to analyze for the pollutant or pollutants that exceeded an AL or violated an AQL. The permittee is subject to enforcement action for the failure to comply with any contingency actions in this permit. Where verification sampling is specified in this permit, it is the option of the permittee to perform such sampling. If verification sampling is not conducted within the timeframe allotted, ADEQ and the permittee shall presume the initial sampling result to be confirmed as if verification sampling has been conducted. The permittee is responsible for compliance with contingency plans relating to the exceedance of an AL or violation of a DL, AQL or any other permit condition.

2.6.2 Exceeding of Alert Levels**2.6.2.1 Exceeding of Alert Levels Set for Operational Conditions****1. Performance Levels Set for Freeboard**

In the event that freeboard performance levels in a surface impoundment are not maintained, the permittee shall:

- a. Immediately cease or reduce discharging to the impoundment to prevent overtopping. Remove and properly dispose or recycle to other operations the excess fluid in the reservoir until the water level is restored at or below the permitted freeboard limit.
- b. Within 5 days of discovery, evaluate the cause of the incident and adjust operational conditions as necessary to avoid future occurrences.
- c. Record in the facility log, the amount of fluid removed, a description of the removal method, and the disposal arrangements. The facility log shall be maintained according to Section 2.7.2 (Operational Inspection / Log Book Recordkeeping). Records documenting each freeboard incident and actions taken to correct the problem shall be included in the current report as required in Section 2.7.1 (Self Monitoring Report Forms).
- d. The facility is no longer on alert status once the operational indicator no longer indicates that the freeboard performance level is being exceeded. The permittee shall, however, complete all tasks necessary to return the facility to its pre-alert operating condition.

2. Performance Levels, Other Than Freeboard

- a. If an operational AL listed in Section 4, Table 4.2.1 has been observed or noted during required inspection and operational monitoring, the permittee shall immediately investigate to determine the cause of the condition. The investigation shall include the following:
 - i. Inspection, testing, and assessment of the current condition of all treatment or pollutant discharge control systems that may have contributed to the operational performance condition.
 - ii. Review of recent process logs, reports, and other operational control information to identify any unusual occurrences.
- b. The AL exceedance, results of the investigation, and any corrective action taken shall be reported to the Water Quality Compliance Section, Enforcement Unit (WQCS/EU), within thirty (30) days of the discovery of the condition. Upon review of the submitted report, the Department may amend the permit to require additional monitoring, increased frequency of monitoring, or other actions.
- c. The permittee shall initiate actions identified in the approved contingency plan referenced in Section 3 and any specific contingency measures identified in Section 2.6 to resolve any problems identified by the investigation which may have led to an AL being exceeded. To implement any other corrective action the permittee shall obtain prior approval from ADEQ according to Section 2.6.6.

2.6.2.2 Exceeding of Alert Levels Set for Discharge Monitoring

Not applicable.

2.6.2.3 Exceeding of Alert Levels in Groundwater Monitoring

2.6.2.3.1 Alert Levels for Indicator Parameters

Not applicable.

2.6.2.3.2 Alert Levels for Pollutants with Numeric Aquifer Water Quality Standards

1. If an AL for a pollutant set in Section 4, Tables 4.2.3 through or 4.2.12 has been exceeded, the permittee may conduct verification sampling within 5 days of becoming aware of an AL being exceeded. The permittee may use the results of another sample taken between the date of the last sampling event and the date of receiving the result as verification.
2. If verification sampling confirms the AL being exceeded or if the permittee opts not to perform verification sampling, then the permittee shall increase the frequency of monitoring to monthly. In addition, the permittee shall immediately initiate an investigation of the cause of the AL being exceeded, including inspection of all discharging units and all related pollution control devices, review of any operational and maintenance practices that might have resulted in an unexpected discharge, and hydrologic review of groundwater conditions including upgradient water quality.
3. The permittee shall initiate actions identified in the approved contingency plan and specific contingency measures identified in Section 2.6 to resolve any problems identified by the investigation which may have led to an AL being exceeded. To implement any other corrective action the permittee shall obtain prior approval from ADEQ according to Section 2.6.6. Alternatively, the permittee may submit a technical demonstration, subject to written approval by the Ground Water Section, that although an AL is exceeded, pollutants are not reasonably expected to cause a violation of an AQL. The demonstration may propose a revised AL or monitoring frequency for approval in writing by the Ground Water Section.
4. Within thirty (30) days after confirmation of an AL being exceeded, the permittee shall submit the laboratory results to the Water Quality Compliance Section, Data Unit along with a summary of the findings of the investigation, the cause of the AL being exceeded, and actions taken to resolve the problem.
5. Upon review of the submitted report, the Department may amend the permit to require additional monitoring, increased frequency of monitoring, or other actions.
6. The increased monitoring required as a result of ALs being exceeded may be reduced to the regularly scheduled frequency, if the results of three (3) consecutive monthly sequential sampling events demonstrate that no parameters exceed the AL.

2.6.2.3.3 Alert Levels to Protect Downgradient Users from Pollutants Without Numeric Aquifer Water Quality Standards

Not applicable.

2.6.3 Discharge Limitations (DL) Violations

If a DL set in Sections 2.6.3.1, 2.6.3.2 or 2.6.3.3 has been violated, the permittee shall immediately investigate to determine the cause of the violation.

2.6.3.1 Liner Failure, Containment Structure Failure, or Unexpected Loss of Fluid

If there is an unexpected loss of fluid, failure of a containment structure, or leakage through the liner system of a permitted surface impoundment, such that fluids are released to the

vadose zone, the permittee shall take the following actions:

1. Immediately cease all non-gravity inflows to the surface impoundment as necessary to prevent any further releases to the environment.
2. Within 24-hours of discovery, notify the ADEQ WQCS.
3. Within five (5) days of discovery of a failure that resulted in a release to the subsurface, collect representative samples of the fluid remaining in the surface impoundment. Samples shall be analyzed for the parameters specified in Section 4.2, Tables 4.2.8 through 4.2.12. Within thirty (30) days of the incident, submit a copy of the analytical results to ADEQ WQCS.
4. Within fifteen (15) days of discovery, initiate an evaluation to determine the cause for the incident. Identify the circumstances that resulted in the failure and assess the condition of the surface impoundment and liner system. Implement corrective actions as necessary to resolve the problems identified in the evaluation. Initiate repairs to any failed liner, system, structure, or other component as needed to restore proper functioning of the surface impoundment. The permittee shall not resume discharging to the surface impoundment until repairs of any failed liner or structure are performed. Repair procedures, methods, and materials used to restore the system(s) to proper operating condition shall be described in the facility log/recordkeeping file and made available for ADEQ review.
5. Within thirty (30) days of discovery, remove any fluid remaining in the surface impoundment as necessary to prevent further releases to the subsurface and/or to perform repairs. Record in the facility log/recordkeeping file the amount of fluid removed, a description of the removal method, and any disposal arrangements. The facility log/recordkeeping file shall be maintained according to Section 2.7.2 (Operation Inspection / Log/Recordkeeping File).
6. Within thirty (30) days of discovery of the incident, submit a report to ADEQ as specified in Section 2.7.3 (Permit Violation and AL Status Reporting). Include a description of the actions performed in subsections 1 through 5 listed above. Upon review of the report, ADEQ may request additional monitoring or remedial actions.
7. Within sixty (60) days of discovery, conduct an assessment of the impacts to the subsoil and/or groundwater resulting from the incident, including geophysical assessment of release to the sub-surface. If soil or groundwater is impacted such that there is a reasonable probability that pollutants will reach an aquifer, submit to ADEQ, for approval, a corrective action plan to address problems identified in the assessment, including identification of releases to the environment, remedial actions and/or monitoring, and a schedule for completion of activities. At the direction of ADEQ, the permittee shall implement the approved plan.
8. Within thirty (30) days of completion of corrective actions, submit to ADEQ, a written report as specified in Section 2.6.6 (Corrective Actions).

2.6.3.2 Overtopping of a Surface Impoundment

If overtopping of fluid from a permitted surface impoundment occurs, the permittee shall:

1. Immediately cease non-gravity inflows to the surface impoundment to prevent any further releases to the environment.
2. Within 24-hours of discovery, notify the ADEQ WQCS.
3. Within five (5) days, collect representative samples of the fluid contained in the surface impoundment. Samples shall be analyzed for the parameters specified in Section 4.2, Tables 4.2.8 through 4.2.12. Within thirty (30) days of the incident, submit a copy of the analytical results to the ADEQ WQCS.
4. Within five (5) days of discovery, remove and dispose of or recycle excess fluid in the impoundment until the water level is restored at or below the required freeboard. Record in the facility log, the amount of fluid removed, a description of the removal

method, and any disposal arrangements. The facility log/recordkeeping file shall be maintained according to Section 2.7.2 (Operation Inspection / Log/Recordkeeping File).

5. Within thirty (30) days of discovery, evaluate the cause of the overtopping and identify the circumstances that resulted in the incident. Implement corrective actions and adjust operational conditions as necessary to resolve the problems identified in the evaluation. Repair any systems as necessary to prevent future occurrences of overtopping.
6. Within thirty (30) days of discovery of overtopping, submit a report to ADEQ as specified in Section 2.7.3 (Permit Violation and AL Status Reporting). Include a description of the actions performed in subsections 1 through 5 listed above. Upon review of the report, ADEQ may request additional monitoring or remedial actions.
7. Within sixty (60) days of discovery, and based on sampling in subsection 3 above, conduct an assessment of the impacts to the subsoil and/or groundwater resulting from the incident.
8. If soil or groundwater is impacted such that it could cause or contribute to an exceedance of an AQL at the applicable POC, submit to ADEQ for approval, a corrective action plan to address problems identified in the assessment, including identification of releases to the environment, remedial actions and/or monitoring, and a schedule for completion of activities. At the direction of ADEQ, the permittee shall implement the approved plan.
9. Within thirty (30) days of completion of corrective actions, submit to ADEQ, a written report as specified in Section 2.6.6 (Corrective Actions).

2.6.3.3 Inflows of Unauthorized Materials to a Surface Impoundment

If any unauthorized materials flow to a permitted surface impoundment, the permittee shall:

1. Immediately cease all unauthorized inflows to the surface impoundment(s).
2. Within 24-hours of discovery, notify the ADEQ WQCS.
3. Within five (5) days of the incident, identify the source of the material and determine the cause for the inflow. Characterize the unauthorized inflow and contents of the affected impoundment, and evaluate the volume and concentration of the inflow to determine if it is compatible with the surface impoundment liner. Based on the evaluation of the incident, repair any systems or equipment and/or adjust operations, as necessary to prevent future occurrences of unauthorized discharges.
4. Within thirty (30) days of an inflow of unauthorized materials, submit a report to ADEQ as specified in Section 2.7.3 (Permit Violation and AL Status Reporting). Include a description of the actions performed in subsections 1 through 3 listed above. Upon review of the report, ADEQ may request additional monitoring or remedial actions.
5. Upon review of the report, the Department may amend the permit to require additional monitoring, increased frequency of monitoring, amendments to permit conditions or other actions.

2.6.4 Aquifer Quality Limit (AQL) Violation

1. If an AQL set in Section 4, Tables 4.2.3 through 4.2.12 has been exceeded, the permittee may conduct verification sampling within 5 days of becoming aware of an AQL being exceeded. The permittee may use the results of another sample taken between the date of the last sampling event and the date of receiving the result as verification.
2. If verification sampling confirms that the AQL is violated for any parameter or if the permittee opts not to perform verification sampling, then the permittee shall increase the frequency of monitoring to monthly. In addition, the permittee shall immediately initiate an evaluation for the cause of the violation, including inspection of all discharging units and all related pollution control devices, and review of any operational and maintenance practices that might have resulted in unexpected discharge.

The permittee also shall submit a report according to Section 2.7.3, which includes a summary of the findings of the investigation, the cause of the violation, and actions taken to resolve the

problem. A verified exceedance of an AQL will be considered a violation unless the permittee demonstrates within 30 days that the exceedance was not caused or contributed to by pollutants discharged from the facility. Unless the permittee has demonstrated that the exceedance was not caused or contributed to by pollutants discharged from the facility, the permittee shall consider and ADEQ may require corrective action that may include control of the source of discharge, cleanup of affected soil, surface water or groundwater, and mitigation of the impact of pollutants on existing uses of the aquifer. Corrective actions shall either be specifically identified in this permit, included in an ADEQ approved contingency plan, or separately approved according to Section 2.6.6. The permittee shall also contact the ADEQ WQARF Program to determine if the AQL exceedance warrants additional site investigations.

3. Upon review of the submitted report, the Department may amend the permit to require additional monitoring, increased frequency of monitoring, or other actions.
4. The permittee shall notify any downstream or downgradient users who may be directly affected by the discharge.
5. The permittee shall continue monitoring at the increased frequency until the contaminant(s) is below the AQL and AL for three consecutive months.

2.6.5 Emergency Response and Contingency Requirements for Unauthorized Discharges pursuant to A.R.S. § 49-201(12) and pursuant to A.R.S. § 49-241

2.6.5.1 Duty to Respond

The permittee shall act immediately to correct any condition resulting from a discharge pursuant to A.R.S. § 49-201(12) if that condition could pose an imminent and substantial endangerment to public health or the environment.

2.6.5.2 Discharge of Hazardous Substances or Toxic Pollutants

In the event of any unauthorized discharge pursuant to A.R.S. § 49-201(12) of suspected hazardous substances (A.R.S. § 49-201(18)) or toxic pollutants (A.R.S. § 49-243(I)) on the facility site, the permittee shall promptly isolate the area and attempt to identify the spilled material. The permittee shall record information, including name, nature of exposure and follow-up medical treatment, if necessary, on persons who may have been exposed during the incident. The permittee shall notify the ADEQ Water Quality Field Service Unit at (602) 771-4620 within 24-hours upon discovering the discharge of hazardous material which: a) has the potential to cause an AWQS or AQL to be exceeded; or b) could pose an endangerment to public health or the environment.

2.6.5.3 Discharge of Non-hazardous Materials

In the event of any unauthorized discharge pursuant to A.R.S. § 49-201(12) of non-hazardous materials from the facility, the permittee shall promptly attempt to cease the discharge and isolate the discharged material. Discharged material shall be removed and the site cleaned up as soon as possible. The permittee shall notify the ADEQ Water Quality Field Service Unit at (602) 771-4620 within 24-hours upon discovering the discharge of non-hazardous material which: a) has the potential to cause an AQL to be exceeded; or b) could pose an endangerment to public health or the environment.

2.6.5.4 Reporting Requirements

The permittee shall submit a written report for any unauthorized discharges reported under Sections 2.6.5.2 and 2.6.5.3 to ADEQ Water Quality Compliance Section at (602) 771-4614 within thirty days of the discharge or as required by subsequent ADEQ action. The report shall summarize the event, including any human exposure, and facility response activities and include all information specified in Section 2.7.3. If a notice is issued by ADEQ subsequent to the discharge notification, any additional information requested in the notice shall also be submitted within the time frame specified in that notice. Upon review of the submitted report, ADEQ may require additional monitoring or corrective actions.

2.6.6 Corrective Actions

Specific contingency measures identified in Section 2.6.5 have already been approved by ADEQ and do not require written approval to implement.

With the exception of emergency response actions taken under Section 2.6.5, the permittee shall obtain written approval from the Ground Water Section prior to implementing a corrective action to accomplish any of the following goals in response to exceeding an AL or violation of an AQL, DL, or other permit condition:

1. Control of the source of an unauthorized discharge;
2. Soil cleanup;
3. Cleanup of affected surface waters;
4. Cleanup of affected parts of the aquifer;
5. Mitigation to limit the impact of pollutants on existing uses of the aquifer.

Within 30 days of completion of any corrective action, the operator shall submit to the ADEQ Water Quality Compliance Section, a written report describing the causes, impacts, and actions taken to resolve the problem.

2.7 Reporting and Recordkeeping Requirements

[A.R.S. § 49-243(K)(2) and A.A.C. R18-9-A206(B) and R18-9-A207]

2.7.1 Self Monitoring Report Forms (SMRF)

1. The permittee shall complete the SMRFs provided by ADEQ, and submit them to the Water Quality Compliance Section, Data Unit.
2. The permittee shall complete the SMRF to the extent that the information reported may be entered on the form. If no information is required during a quarter, the permittee shall enter "not required" on the SMRF and submit the report to ADEQ. The permittee shall use the format devised by ADEQ.
3. The tables contained in Sections 4.0 list the parameters to be monitored and the frequency for reporting results for groundwater compliance monitoring. Analytical methods shall be recorded on the SMRFs.
4. In addition to the SMRF, the information contained in Section 6.9.3 shall be included for exceeding an AL or violation of an AQL, DL, or any other permit condition being reported in the current reporting period.

2.7.2 Operation Inspection / Log Book Recordkeeping

A signed copy of this permit shall be maintained at all times at the location where day-to-day decisions regarding the operation of the facility are made. A log book (paper copies, forms or electronic data) of the inspections and measurements required by this permit shall be maintained at the location where day-to-day decisions are made regarding the operation of the facility. The log book shall be retained for ten years from the date of each inspection, and upon request, the permit and the log book shall be made immediately available for review by ADEQ personnel. The information in the log book shall include, but not be limited to, the following information as applicable:

1. Name of inspector;
2. Date and shift inspection was conducted;
3. Condition of applicable facility components;
4. Any damage or malfunction, and the date and time any repairs were performed;
5. Documentation of sampling date and time;
6. Any other information required by this permit to be entered in the log book, and
7. Monitoring records for each measurement shall comply with R18-9 A206(B)(2).

2.7.3 Permit Violation and Alert Level Status Reporting

1. The permittee shall notify the Water Quality Compliance Section in writing within five days

(except as provided in Section 2.6.5) of becoming aware of a violation of any permit condition, discharge limitation or of an Alert Level being exceeded.

2. The permittee shall submit a written report to the Water Quality Compliance Section within 30 days of becoming aware of the violation of any permit condition or discharge limitation. The report shall document all of the following:
 - a. Identification and description of the permit condition for which there has been a violation and a description of its cause.
 - b. The period of violation including exact date(s) and time(s), if known, and the anticipated time period during which the violation is expected to continue.
 - c. Any corrective action taken or planned to mitigate the effects of the violation, or to eliminate or prevent a recurrence of the violation.
 - d. Any monitoring activity or other information which indicates that any pollutants would be reasonably expected to cause a violation of an Aquifer Water Quality Standard.
 - e. Proposed changes to the monitoring which include changes in constituents or increased frequency of monitoring.
 - f. Description of any malfunction or failure of pollution control devices or other equipment or processes.

2.7.4 Operational, Other or Miscellaneous Reporting

Reserved

2.7.5 Reporting Location

All SMRFs shall be submitted to:

Arizona Department of Environmental Quality
Water Quality Compliance Section, Data Unit
Mail Code: 5415B-1
1110 W. Washington Street
Phoenix, AZ 85007
Phone (602) 771-4513

All documents required by this permit to be submitted to the Water Quality Compliance Section shall be directed to:

Arizona Department of Environmental Quality
Water Quality Compliance Section
Mail Code: 5415B-1
1110 W. Washington Street
Phoenix, AZ 85007
Phone (602) 771-4614

All documents required by this permit to be submitted to the Ground Water Section shall be directed to:

Arizona Department of Environmental Quality
Ground Water Section
Mail Code: 5415B-3
1110 W. Washington Street
Phoenix, AZ 85007
Phone (602) 771-4428

2.7.6 Reporting Deadline

The following table lists the quarterly report due dates:

Monitoring conducted during quarter:	Quarterly Report due by:
January-March	April 30
April-June	July 30
July-September	October 30
October-December	January 30

2.7.7 Changes to Facility Information in Section 1.0

The Ground Water Section and Water Quality Compliance Section shall be notified within 10 days of any change of facility information including Facility Name, Permittee Name, Mailing or Street Address, Facility Contact Person or Emergency Telephone Number.

2.8 Temporary Cessation [A.R.S. § 49-243(K)(8) and A.A.C. R18-9-A209(A)]

The permittee shall give written notice to the Water Quality Compliance Section before ceasing operation of any facility covered by this permit for a period of 60 days or greater. At the time of notification the permittee shall submit for ADEQ approval a plan for maintenance of discharge control systems and for monitoring during the period of temporary cessation. Immediately following ADEQ's approval, the permittee shall implement the approved plan. If necessary, ADEQ shall amend permit conditions to incorporate conditions to address temporary cessation. During the period of temporary cessation, the permittee shall provide written notice to the Water Quality Compliance Section of the operational status of the facility every three years. If the permittee intends to permanently cease operation of any facility, the permittee shall submit closure notification, as set forth in Section 2.9 below.

2.9 Closure [A.R.S. §§ 49-243(K)(6), 49-252 and A.A.C. R18-9-A209(B)]

For a facility addressed under this permit, the permittee shall give written notice of closure to the Water Quality Compliance Section of the permittee's intent to cease operation without resuming activity for which the facility was designed or operated.

2.9.1 Closure Plan

Within 90 days following notification of closure, the permittee shall submit for approval to the Ground Water Section, a Closure Plan which meets the requirements of A.R.S. § 49-252 and A.A.C. R18-9-A209(B)(1)(a).

If the closure plan achieves clean closure immediately, ADEQ shall issue a letter of approval to the permittee. If the closure plan contains a schedule for bringing the facility to a clean closure configuration at a future date, ADEQ may incorporate any part of the schedule as an amendment to this permit.

2.9.2 Closure Completion

Upon completion of closure activities, the permittee shall give written notice to the Ground Water Section indicating that the approved Closure Plan has been implemented fully and providing supporting documentation to demonstrate that clean closure has been achieved (soil sample results, verification sampling results, groundwater data, as applicable). If clean closure has been achieved, ADEQ shall issue a letter of approval to the permittee at that time. If any of the following conditions apply, the permittee shall follow the terms of Post-Closure stated in this permit:

1. Clean closure cannot be achieved at the time of closure notification or within one year thereafter under a diligent schedule of closure actions;
2. Further action is necessary to keep the facility in compliance with aquifer water quality standards at the applicable point of compliance;
3. Continued action is required to verify that the closure design has eliminated discharge to the extent intended;
4. Remedial or mitigative measures are necessary to achieve compliance with Title 49, Ch. 2;

2.10 Post-Closure

[A.R.S. §§49-243(K)(6), 49-252 and A.A.C. R18-9 A209(C)]

Post-closure requirements shall be established based on a review of facility closure actions and will be subject to review and approval by the Ground Water Section.

In the event clean closure cannot be achieved pursuant to A.R.S. § 49-252, the permittee shall submit for approval to the Ground Water Section a Post-Closure Plan that addresses post-closure maintenance and monitoring actions at the facility. The Post-Closure Plan shall meet all requirements of A.R.S. §§ 49-201(29) and 49-252 and A.A.C. R18-9-A209(C). Upon approval of the Post-Closure Plan, this permit shall be amended or a new permit shall be issued to incorporate all post-closure controls and monitoring activities of the Post-Closure Plan.

2.10.1 Post-Closure Plan

Reserved

2.10.2 Post-Closure Completion

Reserved

3.0 COMPLIANCE SCHEDULE [A.R.S. § 49-243(K)(5) and A.A.C. R18-9-A208]

For each compliance schedule item listed below, the permittee shall submit the required information, including a cover letter that lists the compliance schedule items, to the Ground Water Section. A copy of the cover letter must also be submitted to the Water Quality Compliance Section, Data Unit.

Table 3.0.1 General Compliance Schedule Items		
ITEM DESCRIPTION	TIME TO COMPLETE (Months from permit issuance)	REQUIREMENTS
Financial Assurance		
Closure and Post-Closure Costs	3	Submit as an amendment to the APP, a demonstration of the Closure and Post-Closure costs associated with the closure of the facilities regulated under this APP.
Financial Assurance Mechanism	3	Submit as an amendment to the APP, the Financial Assurance Mechanism to be used to cover Closure and Post-Closure costs.

Table 3.0.2 Compliance Schedule for Hydrology		
ITEM DESCRIPTION	TIME TO COMPLETE (Months from permit issuance)	REQUIREMENTS
DISCHARGE CHARACTERIZATION		
Discharge Characterization	3	Submit the laboratory analytical results for discharge characterization of the facilities listed in Section 2.5.1. The permittee shall characterize the discharge in accordance with Section 4.2, Table 4.4.2. The results shall be submitted to the GWS for comparison to the groundwater monitoring requirements.
SETTING ALERT LEVELS AND AQUIFER QUALITY LIMITS FOR POC WELLS		
Permit Amendment to set ALs and AQLS	12	Submit upon completion of the ambient monitoring period copies of all laboratory analytical reports, field notes, the QA/QC procedures used in collection and analysis of the samples, and a report including statistical calculation of the ALs and AQLs to the GWS-APPDWU. The permittee may request that the Ground Water Section, APP and Drywell Unit complete the calculations.
PERMIT AMENDMENT FOR THE DEEP PIT REPOSITORY		
Permit Amendment	12	Submit a permit amendment to include the Copper Cities Deep Pit Tailings Repository Permit into this area-wide permit.
SUBMITTAL OF REMEDIAL ACTION PLAN (RAP)		
Remedial Action Plan (RAP)	12	Submit to the ADEQ Aquifer Protection Permits Program a copy of the approved WQARF Final Remediation Action Plan (RAP). Any additional facility deferrals to WQARF, designations of source areas for remedial actions, and changes to groundwater monitoring or remediation as mandated by the WQARF Program, may result in a permit amendment or other APP actions.

Table 3.0.3 Engineering Compliance Schedule		
FACILITY NAME(#)	TIME TO COMPLETE	REMARKS
Diamond H Haulroad Diversion Channel (9)	Within twelve (12) months of effective date of permit	Submit an amendment that includes the BADCT approach, identifying the preferred upgrade and two copies of facility design or as-built drawings and operational details of the preferred upgrade. The preferred upgrade shall satisfy the requirements of A.R. S. 49-243(B)(1) consistent with the Arizona Mining BADCT Guidance Manual.
No. 6 Remedial Sump (37)		
Nine-in-the-Hole Remedial Sump (13)	Within twenty-four (24) months of effective date of permit	Submit an amendment that includes the BADCT approach, identifying the preferred upgrade and two copies of facility design or as-built drawings and operational details of the preferred upgrade. The preferred upgrade shall satisfy the requirements of A.R. S. 49-243(B)(1) consistent with the Arizona Mining BADCT Guidance Manual.
Ninebo West Remedial Sump (14)		
Ninebo East Remedial Sump (15)		
No. 4 Capacitor Pond (17)		
No. 4 Remedial Sump (18)		
Upper Plant Site Pond (29)		
Lower Plant Site Pond (58)		
Tinhorn Concrete Dam (30)		
Tinhorn Final Pond and Caisson (32)		

Notes: Existing Facilities BADCT Demonstration:

Step 1 – Identify current discharge control technology (DCT) and site factors

Step 2 - Determine aquifer loading

Step 3 – Identify technically feasible alternative DCTs

Step 4 – Weigh cost vs. discharge reduction for each alternative system to arrive at BADCT

For additional details on existing facilities BADCT demonstration, refer to Arizona Mining BADCT Guidance Manual.

4.0 TABLES OF MONITORING REQUIREMENTS

4.1 PRE-OPERATIONAL MONITORING (or CONSTRUCTION REQUIREMENTS)

Table 4.1.1 Permitted Facilities and BADCT			
Facility No.	Facility Name	Latitude/Longitude	Facility BADCT
Myberg Sub-basin			
4	Cherry Spring Diversion Dam	33° 26' 20.9" N 110° 53' 37.7" W	Individual BADCT: Facility is an existing unlined diversion dam consisting of an earthen embankment that is constructed across the natural drainage. The impounded surface is underlain by a clayey-gravely material with hydraulic conductivity of approximately 1.0×10^{-4} cm/sec. The impoundment receives impacted stormwater from upgradient surface areas and diverts the surface flow into Cherry Spring Remedial Sump.
6	Cherry Spring Remedial Sump	33° 26' 11.2" N 110° 53' 37.3" W	Individual BADCT: Facility is an existing unlined impoundment created by clayey sand earthen-fill dam constructed across the canyon. The dam face is covered with geotextile and riprap for erosion control. The facility employs a seepage collection trench as DCT to minimize discharge. The trench is backfilled with drain rock encased in geotextile fabric and top of trench is armored with riprap. The facility and the trench are excavated into crystalline bedrock (Pinal schist with hydraulic conductivity of 3.4×10^{-5} cm/sec). The impoundment receives seepage (leachate) from the waste rock dump. The impounded solution is pumped through an HDPE pipeline into the Diamond H Pit Water Treatment Facility. The impoundment has a design capacity of 6.8 acre-feet - sufficient to contain maximum inflow from the 100-year/24-hour storm event. The facility shall be operated with a minimum of 2 feet of freeboard. The impoundment shall be pumped out as soon as practical, but no later than thirty (30) days after cessation of storm event or upset condition.
8	Cherry Spring Diversion Channel	33° 26' 14.5" N 110° 53' 35" W	Individual BADCT: Facility is an existing diversion and conveyance channel excavated into bedrock (quartz monzonite and Pinal schist) with hydraulic conductivity of approximately 3.4×10^{-5} cm/sec. The channel is 8 feet wide x 2 feet deep x 1,040 feet long with a gradient of 0.06 ft/ft. The channel collects stormwater and run-off from mine waste dumps and discharges into diamond H Pit Reservoir.
9	Diamond H Haulroad Diversion Channel	33° 26' 9.3" N 110° 53' 33.8" W	Facility BADCT shall be determined by the Compliance Schedule (see Section 3.0 Compliance Schedule).

Table 4.1.1 Permitted Facilities and BADCT			
Facility No.	Facility Name	Latitude/Longitude	Facility BADCT
Lost Gulch Sub-basin			
13	Nine-in-the Hole Remedial Sump	33° 26' 9.6" N 110° 53' 12.4" W	Facilities BADCT shall be determined by the Compliance Schedule (see Section 3.0 Compliance Schedule).
14	Ninebo West Remedial Sump	33° 26' 4.2" N 110° 53' 15.2" W	
15	Ninebo East Remedial Sump	33° 15' 3.7" N 110° 53' 13.2" W	
17	No. 4 Capacitor Pond	33° 26' 0.0" N 110° 53' 2.5" W	
18	No. 4 Remedial Sump	33° 26' 56.4" N 110° 53' 1.2" W	
21	No. 4 Concrete Dam	33° 26' 55.9" N 110° 52' 58.8" W	Individual BADCT: Facility is an existing, unlined impoundment created behind a concrete dam, 28 feet long, 4 feet high x 6-inch thick concrete, and constructed on crystalline bedrock with hydraulic conductivity of 3.6×10^{-7} cm/sec. The concrete dam is keyed into bedrock. The dam collects impacted stormwater and leachate, approximately 100 gpm, from the West Leach Dumps through three 12-inch diameter HDPE pipelines into a concrete weir box constructed within the impoundment behind the dam. One 15-inch diameter HDPE pipeline from the weir box carries fluid to No. 4 Concrete Sump. Any seepage through fractured bedrock at No. 4 Concrete Dam is captured by the No. 4 Remedial Sump.
Tinhorn Wash Sub-basin			
29	Upper Plant Site Pond	33° 26' 28.7" N 110° 52' 11.8" W	Facilities BADCT shall be determined by the Compliance Schedule (see Section 3.0 Compliance Schedule).
58	Lower Plant Site Pond	33° 26' 28.5" N 110° 51' 58.2" W	
30	Tinhorn Concrete Dam	33° 26' 25.3" N 110° 51' 49.9" W	
32	Tinhorn Final Pond and Caisson	33° 26' 25.6" N 110° 51' 43.3" W	
37	No. 6 Remedial Sump	Need	
No. 1 Drainage Sub-basin			

Table 4.1.1 Permitted Facilities and BADCT

Facility No.	Facility Name	Latitude/Longitude	Facility BADCT
40	No. 1 Concrete Dam	33° 26' 48.4" N 110° 51' 32.9" W	Facility is an existing, unlined impoundment created behind a steel-reinforced concrete dam, 16 feet high x 52.5 feet long, constructed upon and keyed into crystalline bedrock with hydraulic conductivity of 5.0×10^{-5} cm/sec. The impoundment collects stormwater and leachate from the East Leach Dumps. The impoundment has a fluid storage capacity of 0.2 ac-ft. The impoundment is equipped with an outlet HDPE pipe installed 5 feet above the base to discharge collected fluid into No. 6 Remedial Sump and has a spillway at 10.5 feet above the base. Containment of flows from the 100-year/24-hour storm event is provided in conjunction with No. 1 Basin Impoundment.
42	No. 1 Basin Impoundment	33° 26' 55.5" N 110° 51' 10.3" W	Facility is an existing, unlined impoundment excavated into native soil and developed on Gila conglomerate with an earthen embankment. The impoundment has a fluid storage capacity of 15 ac-ft, with caisson to collect impacted stormwater and seepage from No. 1 concrete Dam. The impoundment is equipped with a barge pump to discharge collected fluid through an HDPE pipe to No. 2 Evaporation Pond. The facility has a standby diesel-powered generator to operate the pump in case of power failure. The facility shall be operated with a minimum of 2 feet of freeboard. The impoundment shall be pumped out as soon as practical, but no later than thirty (30) days after cessation of storm event or upset condition.
44	No. 3 Concrete Dam	33° 27' 0.1" N 110° 51' 27.9" W	Facility is an existing, unlined impoundment created behind a steel-reinforced concrete dam, 12 feet high x 65 feet long, constructed upon and keyed into crystalline bedrock with hydraulic conductivity of 5.0×10^{-5} cm/sec. The impoundment has a fluid storage capacity of 50,000 gallons. The impoundment collects stormwater and leachate from the East Leach Dumps. The impoundment is equipped with an HDPE outlet pipe installed 4 feet above the base to discharge collected fluid into No. 1 Weir (acid-resistant concrete box with a leak detection tunnel underneath) and then to No. 6 Remedial Sump. The concrete dam has a spillway at 11 feet above the base. Containment of flows from the 100-year/24-hour storm event is provided by No. 6 Remedial Sump.
45	East Storm Ditch	33° 26' 58.4" N	Facility is an existing, unlined ditch, 10 feet wide x 6 feet deep x 7,000 feet long,

Table 4.1.1 Permitted Facilities and BADCT			
Facility No.	Facility Name	Latitude/Longitude	Facility BADCT
		110° 51' 5.7" W	excavated into weathered crystalline bedrock with hydraulic conductivity ranging between 1.0×10^{-4} cm/sec and 5.0×10^{-6} cm/sec. The ditch collects impacted stormwater and seepage from the East Leach Dumps and diverts the collected fluid to No. 2 Evaporation Pond. The ditch is designed to transmit surface flows resulting from the 100-year/24-hour storm event.
No. 5 Drainage Sub-basin			
48	No. 5 Earthen Dam	33° 27' 19.8" N 110° 51' 38.8" W	Facility is an existing impoundment created behind an earthen dam, 35 feet wide x 350 long, constructed upon and keyed into crystalline bedrock (hydraulic conductivity 5×10^{-5} cm/sec). The impoundment has a fluid storage capacity of approximately 14 ac-ft, with an 8-inch diameter HDPE pipe outlet near the bottom of the earthen embankment to convey solution to No. 5A Concrete Dam. Any small amount of potential subsurface seepage is captured by the Zook Dam. The impoundment is generally dry.
49	No. 5A Concrete Dam	33° 27' 24.3" N 110° 51' 38.1" W	Facility is an existing, unlined impoundment created behind a steel-reinforced concrete dam, 25 feet long x 2 feet wide x 5 feet high, constructed upon and keyed into crystalline bedrock (hydraulic conductivity 5.0×10^{-6} cm/sec). The impoundment collects impacted stormwater and seepage draining through a discharge pipe from No. 5 Earthen Dam in a weir box and discharges through an HDPE pipe into caisson at the Zook Dam.
51	Zook Dam	33° 27' 25.8" N 110° 51' 37.4" W	Facility is an earthen-fill retention dam constructed across the main channel of No 5 drainage. The impounded area is excavated into crystalline bedrock (hydraulic conductivity approximately 5.0×10^{-6} cm/sec), with a grout curtain extending to a depth of 50 feet beneath the full length of the dam embankment. The dam has a 100 feet long toe drain excavated into bedrock and is equipped with a pumpback system. The impoundment has a fluid storage capacity of approximately 13.14 ac-ft. Accumulated fluid in the impoundment is pumped, via an HDPE pipeline, to discharge into No. 6 Remedial Sump. The facility has a standby diesel-powered generator to operate the pump in case of power failure. The pumping equipment is adequately sized to pump incoming flows and surface flows from the maximum storm event (MSE) of 22.7 ac-ft. The facility shall be operated with a minimum of 2 feet of freeboard. The impoundment shall be pumped out as soon as practical, but no later than thirty (30) days after cessation of storm event or upset condition.
55	No. 5 Sediment Basin	Need	Facility is an existing, unlined impoundment constructed with an earthen

Table 4.1.1 Permitted Facilities and BADCT			
Facility No.	Facility Name	Latitude/Longitude	Facility BADCT
			embankment, underlain by few feet of alluvium overlying crystalline bedrock (hydraulic conductivity approximately 5.0×10^{-6} cm/sec). The impoundment has a fluid storage capacity of several thousand gallons, with a depth of approximately 3 feet. The impoundment collects stormwater and leachate from the East Leach Dump. Accumulated fluid gravity flows through an HDPE pipe outlet located near the impoundment bottom, and reports to No. 5A Concrete Dam.
Copper Cities Deep Pit Sub-Basin			
	Waste Rock Dumps Yellowhair Turquoise Operation	Need	Need

4.2 COMPLIANCE (or OPERATIONAL) MONITORING

TABLE 4.2.1 Required Inspections and Operational Monitoring	
Facility Name (#)	Operational Requirements
Myberg Sub-basin – Non-stormwater Impoundments; Unlined	
Non-stormwater Impoundments – Ponds, Sumps, and Associated Collection Trenches, Conveyance and Diversion Channels:	<p>Monthly: Visually inspect and maintain applicable freeboard in impoundments: -Cherry Spring Remedial Sump - 2 feet</p> <p>Quarterly and following precipitation events measuring at least 1-inch in a 24-hour period: (Precipitation to be measured based on readings obtained from the mine weather station used for such measurements) Visually inspect and take appropriate action if any evidence of: -impairment of embankment integrity as applicable; -impairment of concrete structures – dams, sumps and caissons as applicable; -excessive erosion in trenches, conveyance and diversion channels; -excess accumulation of debris in trenches, conveyance and diversion channels; -blockages of pipes, weirs and spillways; and -impairment of access.</p> <p>At pump locations, inspect pumps, valves, electrics and structures for pump operation and structural integrity.</p> <p>Annually: Remove excess sediments/sludge from the impoundments, trenches, conveyance and diversion channels as needed to maintain at least 80 percent of designed capacity.</p>
Cherry Spring Diversion Dam (4)	
Cherry Spring Remedial Sump (6)	
Cherry Spring Diversion Channel (8)	
Diamond H Haulroad	

TABLE 4.2.1 Required Inspections and Operational Monitoring	
Facility Name (#)	Operational Requirements
Diversion Channel (9)	<p><u>Cherry Spring Remedial Sump</u> Remove accumulated fluid due to upset condition and/or storm event, from the impoundment as soon as practical, but no later than thirty (30) days after cessation of the upset condition or storm event.</p>
Lost Gulch Sub-basin – Non-stormwater Impoundments; Unlined	
<p>Non-stormwater Impoundments – Ponds, Sumps, and Associated Collection Trenches, Conveyance and Diversion Channels:</p> <p>Nine-in-the Hole Remedial Sump (13)</p> <p>Ninebo West Remedial Sump (14)</p> <p>Ninebo East Remedial Sump (15)</p> <p>No. 4 Capacitor Pond (17)</p> <p>No. 4 Remedial Sump (18)</p> <p>No. 4 Concrete Dam (21)</p>	<p>Monthly: Visually inspect and maintain applicable freeboard in impoundments: -Nine-in-the-Hole Remedial Sump - 2 feet -No. 4 Remedial Sump - 2 feet</p> <p>Quarterly and following precipitation events measuring at least 1-inch in a 24-hour period: (Precipitation to be measured based on readings obtained from the mine weather station used for such measurements) Visually inspect and take appropriate action if any evidence of: -impairment of embankment integrity as applicable; -impairment of concrete structures - dams, sumps and caissons as applicable; -excessive erosion in trenches, conveyance and diversion channels; -excess accumulation of debris in trenches, conveyance and diversion channels; -blockages of pipes, weirs and spillways; and -impairment of access.</p> <p>At pump locations, inspect pumps, valves, electrics and structures for pump operation and structural integrity.</p> <p>Annually: Remove excess sediments/sludge from the impoundments, trenches, conveyance and diversion channels as needed to maintain at least 80 percent of designed capacity.</p> <p><u>Nine-in-the-Hole Remedial Sump, and No. 4 Remedial sump</u> Remove accumulated fluid due to upset condition and/or storm event, from the impoundment as soon as practical, but no later than thirty (30) days after cessation of the upset condition or storm event.</p>
Tinhorn Wash Sub-basin – Non-stormwater Impoundments; Unlined	

TABLE 4.2.1 Required Inspections and Operational Monitoring	
Facility Name (#)	Operational Requirements
Non-stormwater Impoundments – Ponds, Sumps, and Associated Collection Trenches, Conveyance and Diversion Channels: Upper Plant Site Pond (29) Lower Plant Site Pond (58) Tinhorn Concrete Dam (30) Tinhorn Final Pond and Caisson (32) No. 6 Remedial Sump (37)	<p>Monthly: Visually inspect and maintain applicable freeboard in impoundments: - Tinhorn Final Pond and Caisson - 2 feet - No. 6 Remedial Sump - 2 feet</p> <p>Quarterly and following precipitation events measuring at least 1-inch in a 24-hour period: (Precipitation to be measured based on readings obtained from the mine weather station used for such measurements) Visually inspect and take appropriate action if any evidence of: - impairment of embankment integrity as applicable; - impairment of concrete structures - dams, sumps and caissons as applicable; - excessive erosion in trenches, conveyance and diversion channels; - excess accumulation of debris in trenches, conveyance and diversion channels; - blockages of pipes, weirs and spillways; and - impairment of access.</p> <p>At pump locations, inspect pumps, valves, electrics and structures for pump operation and structural integrity.</p> <p>Annually: Remove excess sediments/sludge from the impoundments, trenches, conveyance and diversion channels as needed to maintain at least 80 percent of designed capacity.</p> <p><u>Tinhorn Final Pond and Caisson, and No. 6 Remedial Sump</u> Remove accumulated fluid due to upset condition and/or storm event, from the impoundment as soon as practical, but no later than thirty (30) days for Tinhorn Final Pond and Caisson, and 60 days for No. 6 Remedial Sump, after cessation of the upset condition or storm event.</p>
No. 1 Drainage Sub-basin – Non-stormwater Impoundments; Unlined	

TABLE 4.2.1 Required Inspections and Operational Monitoring	
Facility Name (#)	Operational Requirements
Non-stormwater Impoundments – Ponds, Sumps, and Associated Collection Trenches, Conveyance and Diversion Channels: No. 1 Concrete Dam (40) No. 1 Basin Impoundment (42) No. 3 Concrete Dam (44) East Storm Ditch (45)	<p>Monthly: Visually inspect and maintain applicable freeboard in impoundments: -No. 1 Basin Impoundment - 2 feet</p> <p>Quarterly and following precipitation events measuring at least 1-inch in a 24-hour period: (Precipitation to be measured based on readings obtained from the mine weather station used for such measurements) Visually inspect and take appropriate action if any evidence of: -impairment of embankment integrity as applicable; -impairment of concrete structures - dams, sumps and caissons as applicable; -excessive erosion in trenches, conveyance and diversion channels; -excess accumulation of debris in trenches, conveyance and diversion channels; -blockages of pipes, weirs and spillways; and -impairment of access. At pump locations, inspect pumps, valves, electrics and structures for pump operation and structural integrity.</p> <p>Annually: Remove excess sediments/sludge from the impoundments, trenches, conveyance and diversion channels as needed to maintain at least 80 percent of designed capacity.</p> <p><u>No. 1 Basin Impoundment</u> Remove accumulated fluid due to upset condition and/or storm event, from the impoundment as soon as practical, but no later than thirty (30) days after cessation of the upset condition or storm event.</p>
No. 5 Drainage Sub-basin – Non-stormwater Impoundments; Unlined	

TABLE 4.2.1 Required Inspections and Operational Monitoring	
Facility Name (#)	Operational Requirements
Non-stormwater Impoundments – Ponds, Sumps, and Associated Collection Trenches, Conveyance and Diversion Channels: No. 5 Earthen Dam (48) No. 5A Concrete Dam (50) Zook Dam (51) No. 5 Sediment Basin (55)	<p>Monthly: Visually inspect and maintain applicable freeboard in impoundments: -Zook Dam - 2 feet</p> <p>Quarterly and following precipitation events measuring at least 1-inch in a 24-hour period: (Precipitation to be measured based on readings obtained from the mine weather station used for such measurements) Visually inspect and take appropriate action if any evidence of: -impairment of embankment integrity as applicable; -impairment of concrete structures - dams, sumps and caissons as applicable; -excessive erosion in trenches, conveyance and diversion channels; -excess accumulation of debris in trenches, conveyance and diversion channels; -blockages of pipes, weirs and spillways; and -impairment of access. At pump locations, inspect pumps, valves, electrics and structures for pump operation and structural integrity.</p> <p>Annually: Remove excess sediments/sludge from the impoundments, trenches, conveyance and diversion channels as needed to maintain at least 80 percent of designed capacity.</p> <p><u>Zook Dam</u> Remove accumulated fluid due to upset condition and/or storm event, from the impoundment as soon as practical, but no later than thirty (30) days after cessation of the upset condition or storm event.</p>

Table 4.2.2 Parameters for Discharge Characterization(In mg/L unless otherwise noted)		
PH – field & lab (SU)	Sodium	Mercury
Specific Conductance - field and lab (µmhos/cm)	Iron	Nickel
Total Dissolved Solids - field and lab	Aluminum	Selenium
Total Alkalinity	Antimony	Thallium
Carbonate	Arsenic	Zinc
Bicarbonate	Barium	Gross Alpha Particle Activity (pCi/L) ¹
Nitrate	Beryllium	Radium 226 + Radium 228 (pCi/L)
Sulfate	Cadmium	Total Cyanide
Chloride	Chromium	Uranium
Fluoride	Cobalt	TPH
Calcium	Copper	Benzene
Ammonia	Lead	Toluene
Magnesium	Manganese	Ethylbenzene
Potassium	Sodium	Total Xylenes

1. If Gross Alpha Particle Activity is greater than 15 pCi/L, the permittee shall test for adjusted gross alpha particle activity. The adjusted gross alpha particle activity is the gross alpha activity, including radium 226, minus radon and total uranium (the sum of the uranium 238, uranium 235 and uranium 234 isotopes).

Metals shall be analyzed as dissolved metals.

**Table 4.2.3 Quarterly Compliance Groundwater Monitoring Requirements for POC Wells
Lost Gulch Sub-basin**

PARAMETER	CC-302 AQL	AL:	CC-303 AQL	AL	CC-304 AQL	AL
Depth to Water (in feet)	None	None	None	None	None	None
Water Level Elevation (in feet amsl)	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor
Field pH (S.U.)	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor
Field Specific Conductance (µmhos/cm)	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor
Temperature Field (F)	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor
Total Dissolved Solids	Monitor	Monitor.	Monitor	Monitor	Monitor	Monitor
Fluoride	Res.	Res.	Res.	Monitor	Res.	None
Nitrate	Res.	Res.	Res.	Res.	10.0	8.0
Sulfate	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor
Ammonia	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor
Magnesium	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor
Aluminum	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor
Antimony	Res.	Res.	Res.	Res.	Res.	Res.
Arsenic	Res.	Res.	Res.	Res.	0.05	0.04
Beryllium	Res.	Res.	Res.	Res.	Res.	Res.
Cadmium	Res.	Res.	Res.	Res.	Res.	Res.
Cobalt	Monitor	Monitor.	Monitor	Monitor	Monitor	Monitor
Copper	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor
Iron	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor
Lead	Res.	Res.	Res.	Res.	0.05	0.04
Manganese	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor
Mercury	Res.	Res.	Res.	Res.	0.002	0.0016
Nickel	Res.	Res.	Res.	Res.	Res.	Res.
Selenium	Res.	Res.	Res.	Res.	Res.	Res.
Thallium	Res.	Res.	Res.	Res.	Res.	Res.
Zinc	Monitor	Monitor	Monitor	Res.	None	Res.
Gross Alpha Particle Activity (pCi/L)	Res.	Res.	Res.	Monitor	Res.	Monitor
Radium 226 + Radium 228	Res.	Res.	Res.	Res.	Res.	Res.
Uranium	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor

Res.= Reserved: Numerical values for ALs and AQLs listed as reserved for a parameter, will be established in the permit upon completion and submittal to the Ground Water Section, APP and Drywell Unit, of the results from eight (8) monthly sampling events from the well. Incorporation of the numerical values into the permit will be an amendment to the permit.

Monitor= Analysis is required but an AQL and/or AL is not established in the permit

AQL= Aquifer Quality Limit.

AL= Alert Level.

All concentrations in milligrams per liter (mg/L) unless otherwise noted.

Metals shall be analyzed as dissolved metals.

**Table 4.2.4 Quarterly Compliance Groundwater Monitoring Requirements for POC Wells
Tinhorn Wash Sub-basin**

PARAMETER	CC-532 AQL	AL	CC-533 AQL	AL	CC-534 AQL	AL	CC-154 AQL	AL
Depth to Water (in feet)	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor
Water Level Elevation (in feet amsl)	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor
Field pH (S.U.)	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor
Field Specific Conductance (µmhos/cm)	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor
Temperature Field (F)	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor
Total Dissolved Solids	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor
Fluoride	Res.	Res.	Res.	Res.	4	3.8	Res.	Res.
Nitrate	Res.	Res.	Res.	Res.	10.0	8.0	Res.	Res.
Sulfate	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor
Aluminum	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor
Antimony	Res.	Res.	Res.	Res.	Res.	Res.	Res.	Res.
Arsenic	Res.	Res.	Res.	Res.	Res.	Res.	Res.	Res.
Beryllium	Res.	Res.	Res.	Res.	Res.	Res.	Res.	Res.
Cadmium	Res.	Res.	Res.	Res.	Res.	Res.	Res.	Res.
Chromium	Res.	Res.	Res.	Res.	0.1	0.08	Res.	Res.
Cobalt	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor
Copper	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor
Iron	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor
Lead	Res.	Res.	Res.	Res.	Res.	Res.	Res.	Res.
Magnesium	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor
Manganese	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor
Mercury	Res.	Res.	Res.	Res.	Res.	Res.	Res.	Res.
Nickel	Res.	Res.	Res.	Res.	0.05	0.04	Res.	Res.
Selenium	Res.	Res.	Res.	Res.	Res.	Res.	Res.	Res.
Thallium	Res.	Res.	Res.	Res.	Res.	Res.	Res.	Res.
Zinc	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor
Gross Alpha Particle Activity (pCi/L)	Res.	Res.	Res.	Res.	Res.	Res.	Res.	Res.
Radium 226 + Radium 228 (pCi/L)	Res.	Res.	Res.	Res.	Res.	Res.	Res.	Res.
Uranium	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor

Res.= Reserved: Numerical values for ALs and AQLs listed as reserved for a parameter, will be established in the permit upon completion and submittal to the Ground Water Section, APP and Drywell Unit, of the results

from eight (8) monthly sampling events from the well. Incorporation of the numerical values into the permit will be an amendment to the permit.

Monitor= Analysis is required but an AQL and/or AL is not established in the permit

AQL= Aquifer Quality Limit.

AL= Alert Level.

All concentrations in milligrams per liter (mg/L) unless otherwise noted.

Metals shall be analyzed as dissolved metals.

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<p>Table 4.2.5 Quarterly Compliance Groundwater Monitoring Requirements for POC Wells No. 1 Sub-basin</p>

PARAMETER	No. 1 Adit Caisson AQL	AL	CC-530 AQL	AL
Depth to Water (in feet)	Monitor	Monitor	Monitor	Monitor
Water Level Elevation (in feet amsl)	Monitor	Monitor	Monitor	Monitor
Field pH (S.U.)	Monitor	Monitor	Monitor	Monitor
Field Specific Conductance (µmhos/cm)	Monitor	Monitor	Monitor	Monitor
Temperature Field (F)	Monitor	Monitor	Monitor	Monitor
Total Dissolved Solids	Monitor	Monitor	Monitor	Monitor
Fluoride	Res.	Res.	4	3.8
Nitrate	Res.	Res.	10.0	8.0
Magnesium	Monitor	Monitor	Monitor	Monitor
Sulfate	Monitor	Monitor	Monitor	Monitor
Antimony	Res.	Res.	0.006	0.0048
Aluminum	Monitor	Monitor	Monitor	Monitor
Arsenic	Res.	Res.	Res.	Res.
Beryllium	Res.	Res.	Res.	Res.
Cadmium	Res.	Res.	0.005	0.004
Chromium	Res.	Res.	Res.	Res.
Cobalt	Monitor	Monitor	Monitor	Monitor
Copper	Monitor	Monitor	Monitor	Monitor
Iron	Monitor	Monitor	Monitor	Monitor
Lead	Res.	Res.	0.05	0.04
Manganese	Monitor	Monitor	Monitor	Monitor
Mercury	Res.	Res.	0.002	0.0016
Nickel	Res.	Res.	0.1	0.08
Selenium	Res.	Res.	Res.	Res.
Thallium	Res.	Res.	Res.	Res.
Zinc	Monitor	Monitor	Monitor	Monitor
Gross Alpha Particle Activity (pCi/L)	Res.	Res.	Res.	Res.
Radium 226 + Radium 228 (pCi/L)	Res.	Res.	Res.	Res.
Uranium	Monitor	Monitor	Monitor	Monitor

Res.= Reserved: Numerical values for ALs and AQLs listed as reserved for a parameter, will be established in the permit upon completion and submittal to the Ground Water Section, APP and Drywell Unit, of the results from eight (8) monthly sampling events from the well. Incorporation of the numerical values into the permit will be an amendment to the permit.

Monitor= Analysis is required but an AQL and/or AL is not established in the permit

AQL= Aquifer Quality Limit.

AL= Alert Level.

All concentrations in milligrams per liter (mg/L) unless otherwise noted.

Metals shall be analyzed as dissolved metals.

**Table 4.2.6 Quarterly Compliance Groundwater Monitoring Requirements for POC Wells
No 5 Sub-basin**

PARAMETER	CC-964 AQL	AL
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Table 4.2.6 Quarterly Compliance Groundwater Monitoring Requirements for POC Wells No 5 Sub-basin		
PARAMETER	CC-964 AQL	AL
Depth to Water (in feet)	Monitor	Monitor
Water Level Elevation (in feet amsl)	Monitor	Monitor
Field pH (S.U.)	Monitor	Monitor
Field Specific Conductance (µmhos/cm)	Monitor	Monitor
Temperature Field (F)	Monitor	Monitor
Total Dissolved Solids	Monitor	Monitor
Fluoride	4.0	3.20
Nitrate	10	8
Sulfate	Monitor	Monitor
Aluminum	Monitor	Monitor
Antimony	Res.	Res.
Arsenic	0.05	0.04
Beryllium	0.004	0.0032
Cadmium	0.005	0.004
Cobalt	Monitor	Monitor
Chromium	0.1	0.08
Iron	Monitor	Monitor
Lead	0.05	0.04
Magnesium	Monitor	Monitor
Manganese	Monitor	Monitor
Nickel	Res.	Res.
Selenium	0.05	0.04
Thallium	0.002	0.0016
Zinc	Monitor	Monitor
Gross Alpha Particle Activity (pCi/L)	Res.	Res.
Radium 226 + Radium 228(pCi/L)	Res.	Res.
Uranium	Monitor	Monitor

Res.= Reserved: Numerical values for AIs and AQLs listed as reserved for a parameter, will be established in the permit upon completion and submittal to the Ground Water Section, APP and Drywell Unit, of the results from eight (8) monthly sampling events from the well. Incorporation of the numerical values into the permit will be an amendment to the permit.

Monitor= Analysis is required but an AQL and/or AL is not established in the permit

AQL= Aquifer Quality Limit.

AL= Alert Level.

All concentrations in milligrams per liter (mg/L) unless otherwise noted.

Metals shall be analyzed as dissolved metals.

**Table 4.2.7 Biennial Compliance Groundwater Monitoring Requirements for the POC wells
Lost Gulch Sub-basin**

PARAMETER	CC-302 AQL	AL	CC-303 AQL	AL	CC-304 AQL	AL
Depth to Water (in feet)	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor
Water Level Elevation (in feet amsl)	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor
Field pH (S.U.)	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor
Field Specific Conductance (µmhos/cm)	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor
Temperature Field (F)	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor
Total Dissolved Solids	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor
Total Alkalinity	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor
Hardness	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor
Carbonate	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor
Bicarbonate	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor
Chloride	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor
Sulfate	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor
Calcium	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor
Magnesium	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor
Potassium	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor
Silica	Monitor	Monitor	None	Monitor	Monitor	Monitor
Sodium	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor
Nitrate + Nitrite	Res.	Res.	Res.	Res.	Res.	Res.
Cyanide	Res.	Res.	Res.	Res.	Res.	Res.
Fluoride	Res.	Res.	Res.	Res.	Res.	Res.
Aluminum	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor
Antimony	Res.	Res.	Res.	Res.	Res.	Res.
Arsenic	Res.	Res.	Res.	Res.	Res.	Res.
Barium	Res.	Res.	Res.	Res.	Res.	Res.
Beryllium	Res.	Res.	Res.	Res.	Res.	Res.
Cadmium	Res.	Res.	Res.	Res.	Res.	Res.
Chromium	Res.	Res.	Res.	Res.	Res.	Res.
Cobalt	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor
Copper	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor
Iron	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor
Lead	Res.	Res.	Res.	Res.	Res.	Res.
Manganese	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor
Mercury	Res.	Res.	Res.	Res.	Res.	Res.
Nickel	Res.	Res.	Res.	Res.	Res.	Res.
Selenium	Res.	Res.	Res.	Res.	Res.	Res.
Thallium	Res.	Res.	Res.	Res.	Res.	Res.
Copper	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor
Cobalt	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor
Manganese	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor

Table 4.2.7 Biennial Compliance Groundwater Monitoring Requirements for the POC wells Lost Gulch Sub-basin						
PARAMETER	CC-302 AQL	AL	CC-303 AQL	AL	CC-304 AQL	AL
Zinc	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor
Gross Alpha Particle Activity (pCi/L)	Res.	Res.	Res.	Res.	Res.	Res.
Radium 226 + Radium 228 (pCi/L)	Res.	Res.	Res.	Res.	Res.	Res.
Uranium	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor
TPH	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor

Res.= Reserved: Numerical values for ALs and AQLs listed as reserved for a parameter, will be established in the permit upon completion and submittal to the Ground Water Section, APP and Drywell Unit, of the results from eight (8) monthly sampling events from the well. Incorporation of the numerical values into the permit will be an amendment to the permit.

Monitor = Analysis is required but an AQL and/or AL is not established in the permit.

AQL = Aquifer Quality Limit.

AL = Alert Level.

All concentrations in milligrams per liter (mg/L) except where noted.

Metals shall be analyzed as dissolved metals.

If the gross alpha particle activity is greater than 15 pCi/L, then test for adjusted gross alpha particle activity. The adjusted gross alpha particle activity is the gross alpha particle activity including radium 226, minus radon and total uranium (the sum of the uranium 238, 235 and 234 isotopes).

Table 4.2.8 Biennial Compliance Groundwater Monitoring Requirements for POC Wells Tinhorn Wash Sub-basin								
PARAMETER	CC-532 AQL	AL	CC-533 AQL	AL	CC-534 AQL	AL	CC-154 AQL	AL

**Table 4.2.8 Biennial Compliance Groundwater Monitoring Requirements for POC Wells
Tinhorn Wash Sub-basin**

[illegible]

Table 4.2.8 Biennial Compliance Groundwater Monitoring Requirements for POC Wells Tinhorn Wash Sub-basin								
PARAMETER	CC-532 AQL	AL	CC-533 AQL	AL	CC-534 AQL	AL	CC-154 AQL	AL
Gross Alpha Particle Activity (pCi/L)	Res.	Res.	Res.	Res.	Res.	Res.	Res.	Res.
Radium 226 + Radium 228 (pCi/L)	Res.	Res.	Res.	Res.	Res.	Res.	Res.	Res.
Uranium	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor
TPH	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor

Res.= Reserved: Numerical values for AIs and AQLs listed as reserved for a parameter, will be established in the permit upon completion and submittal to the Ground Water Section, APP and Drywell Unit, of the results from eight (8) monthly sampling events from the well. Incorporation of the numerical values into the permit will be an amendment to the permit.

Monitor = Analysis is required but an AQL and/or AL is not established in the permit.

AQL = Aquifer Quality Limit.

AL = Alert Level.

All concentrations in milligrams per liter (mg/L) except where noted.

Metals shall be analyzed as dissolved metals.

If the gross alpha particle activity is greater than 15 pCi/L, then test for adjusted gross alpha particle activity. The adjusted gross alpha particle activity is the gross alpha particle activity including radium 226, minus radon and total uranium (the sum of the uranium 238, 235 and 234 isotopes).

Table 4.2.9 Biennial Compliance Groundwater Monitoring Requirements for the POC wells No 1 Sub-basin				
PARAMETER	No. 1 Adit Caisson AQL	AL	CC-530 AQL	AL
Depth to Water (in feet)	Monitor	Monitor	Monitor	Monitor
Water Level Elevation (in feet amsl)	Monitor	Monitor	Monitor	Monitor
Field pH (S.U.)	Monitor	Monitor	Monitor	Monitor
Field Specific Conductance (µmhos/cm)	Monitor	Monitor	Monitor	Monitor
Temperature Field (F)	Monitor	Monitor	Monitor	Monitor
Total Dissolved Solids	Monitor	Monitor	Monitor	Monitor
Total Alkalinity	Monitor	Monitor	Monitor	Monitor
Hardness	Monitor	Monitor	Monitor	Monitor
Carbonate	Monitor	Monitor	Monitor	Monitor
Bicarbonate	Monitor	Monitor	Monitor	Monitor
Chloride	Monitor	Monitor	Monitor	Monitor
Sulfate	Monitor	Monitor	Monitor	Monitor
Calcium	Monitor	Monitor	Monitor	Monitor
Magnesium	Monitor	Monitor	Monitor	Monitor
Potassium	Monitor	Monitor	Monitor	Monitor
Silica	Monitor	Monitor	Monitor	Monitor
Sodium	Monitor	Monitor	Monitor	Monitor
Nitrate + Nitrite	Res.	Res.	10	8.0
Cyanide	Res.	Res.	Res.	Res.
Fluoride	Res.	Res.	4.0	3.2
Aluminum	Monitor	Monitor	Monitor	Monitor
Antimony	Res.	Res.	0.006	0.0048
Arsenic	Res.	Res.	Res.	Res.
Barium	Res.	Res.	2.0	1.6
Beryllium	Res.	Res.	0.004	0.0032
Cadmium	Res.	Res.	0.005	0.004
Chromium	Res.	Res.	0.1	0.08
Cobalt	Monitor	Monitor	Monitor	Monitor
Copper	Monitor	Monitor	Monitor	Monitor
Iron	Monitor	Monitor	Monitor	Monitor
Lead	Res.	Res.	0.05	0.04
Manganese	Monitor	Monitor	Monitor	Monitor
Mercury	Res.	Res.	0.002	0.0016
Nickel	Res.	Res.	0.1	0.08
Selenium	Res.	Res.	0.05	0.04
Thallium	Res.	Res.	0.002	0.0016
Copper	Monitor	Monitor	Monitor	Monitor
Cobalt	Monitor	Monitor	Monitor	Monitor

Table 4.2.9 Biennial Compliance Groundwater Monitoring Requirements for the POC wells No 1 Sub-basin				
PARAMETER	No. 1 Adit Caisson AQL	AL	CC-530 AQL	AL
Manganese	Monitor	Monitor	Monitor	Monitor
Zinc	Monitor	Monitor	Monitor	Monitor
Gross Alpha Particle Activity (pCi/L)	Res.	Res.	Res.	Res.
Radium 226 + Radium 228 (pCi/L)	Res.	Res.	Res.	Res.
Uranium	Monitor	Monitor	Monitor	Monitor
TPH	Monitor	Monitor	Monitor	Monitor

Res.= Reserved: Numerical values for AIs and AQLs listed as reserved for a parameter, will be established in the permit upon completion and submittal to the Ground Water Section, APP and Drywell Unit, of the results from eight (8) monthly sampling events from the well. Incorporation of the numerical values into the permit will be an amendment to the permit.

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AL = Alert Level.

All concentrations in milligrams per liter (mg/L) except where noted.

Metals shall be analyzed as dissolved metals.

If the gross alpha particle activity is greater than 15 pCi/L, then test for adjusted gross alpha particle activity. The adjusted gross alpha particle activity is the gross alpha particle activity including radium 226, minus radon and total uranium (the sum of the uranium 238, 235 and 234 isotopes).

Table 4.2.10 Biennial Compliance Groundwater Monitoring Requirements for the POC wells No. 5 Sub-basin		
PARAMETER	CC-964 AQL	AL
Depth to Water (in feet)	Monitor	Monitor
Water Level Elevation (in feet amsl)	Monitor	Monitor
Field pH (S.U.)	Monitor	Monitor
Field Specific Conductance (µmhos/cm)	Monitor	Monitor
Temperature Field (F)	Monitor	Monitor
Total Dissolved Solids	Monitor	Monitor
Total Alkalinity	Monitor	Monitor
Hardness	Monitor	Monitor
Carbonate	Monitor	Monitor
Bicarbonate	Monitor	Monitor
Chloride	Monitor	Monitor
Sulfate	Monitor	Monitor
Calcium	Monitor	Monitor
Magnesium	Monitor	Monitor
Potassium	Monitor	Monitor
Silica	Monitor	Monitor
Sodium	Monitor	Monitor
Nitrate + Nitrite	10	8.0
Cyanide	Res.	Res.
Fluoride	4.0	3.2
Aluminum	Monitor	Monitor
Antimony	0.006	0.0048
Arsenic	0.05	0.04
Barium	2.0	1.6
Beryllium	0.004	0.0032
Cadmium	0.005	0.004
Chromium	0.1	0.08
Cobalt	Monitor	Monitor
Copper	Monitor	Monitor
Iron	Monitor	Monitor
Lead	0.05	0.04
Manganese	Monitor	Monitor
Mercury	0.002	0.0016
Nickel	Res.	Res.
Selenium	0.05	0.04
Thallium	0.002	0.0016
Copper	Monitor	Monitor
Cobalt	Monitor	Monitor
Manganese	Monitor	Monitor
Zinc	Monitor	Monitor

Table 4.2.10 Biennial Compliance Groundwater Monitoring Requirements for the POC wells No. 5 Sub-basin		
PARAMETER	CC-964 AQL	AL
Gross Alpha Particle Activity (pCi/L)	Res.	Res.
Radium 226 + Radium 228 (pCi/L)	Res.	Res.
Uranium	Monitor	Monitor
TPH	Monitor	Monitor

Res.= Reserved: Numerical values for AIs and AQLs listed as reserved for a parameter, will be established in the permit upon completion and submittal to the Ground Water Section, APP and Drywell Unit, of the results from eight (8) monthly sampling events from the well. Incorporation of the numerical values into the permit will be an amendment to the permit.

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Metals shall be analyzed as dissolved metals.

If the gross alpha particle activity is greater than 15 pCi/L, then test for adjusted gross alpha particle activity. The adjusted gross alpha particle activity is the gross alpha particle activity including radium 226, minus radon and total uranium (the sum of the uranium 238, 235 and 234 isotopes).

5.0 REFERENCES AND PERTINENT INFORMATION

The terms and conditions set forth in this permit have been developed based upon the information contained in the following, which are on file with the Department:

1. APP Application dated 11/01/1996.
2. Public Notice, dated _____.
3. Public Hearing, dated _____.
4. Responsiveness Summary, dated _____.

6.0 NOTIFICATION PROVISIONS

6.1 Annual Registration Fees

The permittee is notified of the obligation to pay an Annual Registration Fee to ADEQ. The Annual Registration Fee is based upon the amount of daily influent or discharge of pollutants in gallons per day as established by A.R.S. § 49-242.

6.2 Duty to Comply [A.R.S. §§ 49-221 through 49-263]

The permittee is notified of the obligation to comply with all conditions of this permit and all applicable provisions of Title 49, Chapter 2, Articles 1, 2 and 3 of the Arizona Revised Statutes, Title 18, Chapter 9, Articles 1 through 4, and Title 18, Chapter 11, Article 4 of the Arizona Administrative Code. Any permit non-compliance constitutes a violation and is grounds for an enforcement action pursuant to Title 49, Chapter 2, Article 4 or permit amendment, suspension, or revocation.

6.3 Duty to Provide Information [A.R.S. §§ 49-243(K)(2) and 49-243(K)(8)]

The permittee shall furnish to the Director, or an authorized representative, within a time specified, any information which the Director may request to determine whether cause exists for amending or terminating this permit, or to determine compliance with this permit. The permittee shall also furnish to the Director, upon request, copies of records required to be kept by this permit.

6.4 Compliance with Aquifer Water Quality Standards [A.R.S. §§ 49-243(B)(2) and 49-243(B)(3)]

The permittee shall not cause or contribute to a violation of an aquifer water quality standard at the applicable point of compliance for the facility. Where, at the time of issuance of the permit, an aquifer already exceeds an aquifer water quality standard for a pollutant, the permittee shall not discharge that pollutant so as to further degrade, at the applicable point of compliance for the facility, the water quality of any aquifer for that pollutant.

6.5 Technical and Financial Capability

[A.R.S. §§ 49-243(K)(8) and 49-243(N) and A.A.C. R18-9-A202(B) and R18-9-A203(E) and (F)]

The permittee shall have and maintain the technical and financial capability necessary to fully carry out the terms and conditions of this permit. Any bond, insurance policy, trust fund, or other financial assurance mechanism provided as a demonstration of financial capability in the permit application, pursuant to A.A.C. R18-9-A203(D), shall be in effect prior to any discharge authorized by this permit and shall remain in effect for the duration of the permit.

6.6 Reporting of Bankruptcy or Environmental Enforcement [A.A.C. R18-9-A207(C)]

The permittee shall notify the Director within five days after the occurrence of any one of the following:

1. The filing of bankruptcy by the permittee.
2. The entry of any order or judgment not issued by the Director against the permittee for the enforcement of any environmental protection statute or rule.

6.7 Monitoring and Records [A.R.S. § 49-243(K)(8) and A.A.C. R18-9-A206]

The permittee shall conduct any monitoring activity necessary to assure compliance with this permit, with the applicable water quality standards established pursuant to A.R.S. §§ 49-221 and 49-223 and §§ 49-241 through 49-252.

6.8 Inspection and Entry [A.R.S. §§ 41-1009, 49-203(B) and 49-243(K)(8)]

In accordance with A.R.S. §§ 41-1009 and 49-203(B), the permittee shall allow the Director, or an authorized representative, upon the presentation of credentials and other documents as may be required by law, to enter and inspect the facility as reasonably necessary to ensure compliance with Title 49, Chapter 2, Article 3 of the Arizona Revised Statutes, and Title 18, Chapter 9, Articles 1 through 4 of the Arizona Administrative Code and the terms and conditions of this permit.

6.9 Duty to Modify [A.R.S. § 49-243(K)(8) and A.A.C. R18-9-A211]

The permittee shall apply for and receive a written amendment before deviating from any of the designs or operational practices specified by this permit.

6.10 Permit Action: Amendment, Transfer, Suspension & Revocation

[A.R.S. §§ 49-201, 49-241 through 251, A.A.C. R18-9-A211, R18-9-A212 and R18-9-A213]

This permit may be amended, transferred, renewed, or revoked for cause, under the rules of the Department.

The permittee shall notify the Groundwater Section in writing within 15 days after any change in the owner or operator of the facility. The notification shall state the permit number, the name of the facility, the date of property transfer, and the name, address, and phone number where the new owner or operator can be reached. The operator shall advise the new owner or operators of the terms of this permit and the need for permit transfer in accordance with the rules.

7.0 ADDITIONAL PERMIT CONDITIONS

7.1 Other Information[A.R.S. § 49-243(K)(8)]

Where the permittee becomes aware that it failed to submit any relevant facts in a permit application, or submitted incorrect information in a permit application or in any report to the Director, the permittee shall promptly submit the correct facts or information.

7.2 Severability

[A.R.S. §§ 49-201, 49-241 through 251, A.A.C. R18-9-A211, R18-9-A212 and R18-9-A213]

The provisions of this permit are severable, and if any provision of this permit, or the application of any provision of this permit to any circumstance, is held invalid, the application of such provision to other circumstances, and the remainder of this permit, shall not be affected thereby. The filing of a request by the permittee for a permit action does not stay or suspend the effectiveness of any existing permit condition.

7.3 Permit Transfer

This permit may not be transferred to any other person except after notice to and approval of the transfer by the Department. No transfer shall be approved until the applicant complies with all transfer requirements as specified in A.A.C. R18-9-A212(B) and (C).